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THE CAMPAIGN AGAINST INFANTILE TUBERCULOSIS IN FRANCE

AND THE PRESERVATION OF CHILDHOOD AGAINST ITS RAVAGES BY THE SYSTEM OF THE "ŒUVRE GRANCHER"

PAUL ARMAND-DE LILLE, M.D.

Médecin des Hôpitaux de Paris; Médecin Major de l'Armée Française; on Special Mission to the United States

PARIS, FRANCE

Tuberculosis is an infection unhappily too frequent in France—as well as in all other countries—though not having the extent that has been attributed to it by certain unthinking or ill willed publicists who apparently have wished to convey the impression that France is a country sanitarily and morally decadent.

One can understand easily, today, that France has retained her former virtues, as demonstrated by her valor on the field of battle and her sacrifices for the defense of the right and liberty of the world.

France unfortunately counts a certain number of the tuberculous, in proportion relatively small, but nevertheless sufficient to contribute a grave danger to her reconstruction after the war. In the same manner in which you are here to aid us on the field of battle, you desire to aid us in saving the generations of tomorrow.

If one refers to the most recent statistics, with the reserve always necessary because of the personal equation in medical diagnosis, especially in those forms in which bacilli are not demonstrated, one can say that among 37,000,000 inhabitants in France only 250,000 persons are suffering from tuberculosis. This is based on the following figures: The military statistics, which naturally include all the men from 18 to 48 years, give us the figure of 85,000 invalided from the army because of tuberculosis. This number may be considered as absolutely a maximum, because it includes a definite percentage of men who passed the examining board twice before they were declared unfit for service, and that a certain number of suspects are taken a second time. Further, one may consider that the number is practically the same for the women. There is a maximum figure of 30,000 for persons over 48, and finally, at the outside limit, probably much too large, 50,000 children. This totals 250,000 and gives a percentage of 0.68. This number is infinitely less than the calumnies and untruthful statements of a certain press. Also a great number of the cases are curable, so that our death rate for tuberculosis is probably never more than 100,000 persons per year. Nevertheless, all physicians know that pulmonary tuberculosis is contagious from the time the patient begins to expectorate bacilli, even if it is a curable case, and that even if well tolerated by the patient, it can still be infectious to another person, causing in him a fatal form.

It is by this association with tuberculous parents that children are most often infected, very much more than from a bovine origin. The young child frequently dies from tuberculous meningitis, against which form we as yet can do nothing. In an older child, the tuberculosis manifests itself sometimes in a granular form, often fatal, or a pulmonary type, occasionally also as a pleural form, in which the prognosis is bad. But the most frequent forms of tuberculosis in children, are well known, the localized glandular, ostearticular or peritoneal infections: those which are on the contrary essentially curable by an appropriate treatment. This treatment, purely physiotherapeutic, is the marine or the sun cure, or what is better, the combination of the two, the heliomarine.

I will explain first what has been done in our country for the cure of tuberculous children, or to protect them, and then I will tell you what remains to be done and in what manner we count on your fraternal aid to complete the necessary measures.

EARLY EFFORTS IN CURING TUBERCULOUS CHILDREN

France has accomplished a great deal in this sense, and many years ago, in 1847, there was founded in Cette, by a charitable woman, a small hospital at the seaside, comprising twenty-four beds. It was similar to two other institutions, the one installed at Margate in England in 1796, the other at San Remo, if I remember correctly, in Italy, in 1841. Nevertheless, those feeble efforts did not attract the attention of either the public or the physicians, and it was the contribution of the Maritime Hospital at Berck-sur-Mer, in Pas de Calais, which demonstrated the all important influence of a sojourn at the seashore for the cure of local manifestations of tuberculosis. The origin of the hospital of Berck is very curious, and demonstrates the part of chance in the production of scientific results at the same time as that of interpretation of those results by a good observer.

The service of the Enfants assistés in Paris had organized the individual placement of children in nurseries in the country, a long time previously, in order to prevent the agglomeration of children in the orphanages of the city. As early as 1850, it had sent those children to certain regions, especially to the department of the Pas de Calais, which is the one that the Germans have attempted to invade during the past

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few weeks. At that time, in the village of Berck, situated 4 kilometers (2½ miles) from the sea, there was a good woman who had apparently a real passion for nursing. She was continually asking that she be sent the sickest children, the rachitics, and those then called "scrofulous," that is to say, the children who had glandular or osseous tuberculosis. This good woman had an instinctive faith in the reaction to be obtained at the seashore. Every morning, even in good or bad weather, the children were placed in a large wheelbarrow, which she herself pushed to the shore, while those who were larger or strong enough walked the distance with her. When she reached the sand, she installed her little charges, leaving them to sleep or to play on the beach, and returning them to the house only when evening came on. At the end of a few months of this treatment, the little patients were transformed. The results which she obtained were so astonishing that they were soon noticed by the inspector of the Assistance publique. It thereupon confided to her a larger number of children for whom she purchased a donkey cart and continued her daily trips to the beach.

Success continuing, and the number of children becoming too large, she decided to construct a small home with twenty-five beds at the seashore itself, the donkey cart then being reserved for the provisioning of the little hospital. Soon the house was increased in size, and the inspector induced the Assistance publique to construct in the same district a true hospital of a hundred beds, which construction was completed in 1861. It still remains, and I myself saw it only a few years ago, now surrounded by the great modern establishment.

They had then only empiric treatment, directed by a good woman, almost ignorant, but guided by an admirable instinct as well as by a charitable heart.

DEVELOPMENT OF THE WORK

The administration of the Assistance publique decided finally to send a physician for children, then very well known, Dr. Bergeron, later president of the Académie de médecine, who was directed to inquire into the results obtained at this new hospital. For the eminent and devoted physician, the results were a veritable revelation. In his report, which created a sensation, he demonstrated by figures, which carried proof, the marvelous efficiency of life in the open air, especially sea air, for the cure of rachitic and scrofulous children. Because of this, the Assistance publique decided to build a new hospital of 600 beds, under the direction of a physician, and it was inaugurated in 1869. It has been increased by new buildings since that time, and today, including superb sun galleries, etc., cares for 2,000 patients.

In the neighborhood of the hospital there have been constructed various private clinics and villas where people in easy circumstances come in order to remain with their sick children, in such a way that the station of Berck-sur-Mer, exclusively consecrated to osteoarticular and glandular tuberculosis, today counts more than 4,000 little patients, and its population, comprising nurses, physicians, employees and parents, totals more than 10,000 persons. Perhaps this is nothing compared to the growth of American cities, but in an ancient country like France, it is an interesting fact, especially since it was constructed entirely for children ill with tuberculosis.

The example given by the Paris Assistance publique at Berck was soon followed in other districts, even by private institutions, and by the cities or communities which contained a sufficient number of physicians and philanthropists, devoted to the interests of childhood, who joined together in order to coordinate their efforts and give a safe guide to the application of this marine cure. This federation proceeded, in 1887, to the creation of the National Association for Maritime Sanatoriums, which founded shortly afterward two hospitals, one at Banyuls-sur-Mer on the edge of the Mediterranean, and the other at St. Trojan, not far from Bordeaux, on the shore of the ocean.

Since these were founded, many others have been installed, on all the shores of France, especially at Dinard, Roscoff, Peu-Bron, Arcachon, Cape Breton, and at Hendaye, where the Assistance publique has also 1,200 beds, and on the Mediterranean at Hyères, Cavalaire, Cannes and Palavas.

HELIOTHERAPY

For the past ten years, a new therapeutic factor has been added to that of the marine cure, namely, that of heliotherapy. The treatment of sluggish lesions, and particularly of fistula, by the sun is due to Ollier, a professor of surgery of the medical school of Lyons, who recommended it since 1880: but the development of heliotherapy by external sun baths was due to the efforts of Rollier, a surgeon of French Switzerland, who has given the devotion of an apostle in spreading the propaganda for this extraordinarily successful method.

Encouraged by his first results, Rollier established at Leysin, at an altitude of 4,000 feet in the mountains of Switzerland near the French frontier, a series of sanatoriums where the tuberculous children are exposed entirely nude, by successive stages, to the rays of the sun. Under the influence of this treatment, the tuberculous, even those with fistula, are cured in from six to eighteen months; and the most interesting fact is that it is not necessary to make use of plaster or other apparatus except those for extension, a definite mobilization of the joint usually returning. The sun cure is now combined everywhere with the marine cure, particularly at the Mediterranean stations, where it is possible to remain out doors during all the year.

Although we have at present a great number of marine sanatoriums, they are still not sufficient to receive all the little patients in France—and for that reason we wish to increase them, much more since some of them have been taken at the present time by the Service de Santé for the treatment of tuberculosis in soldiers infected with local lesions.

For the cases of pulmonary tuberculosis among the children, for which type of case the sea air is not particularly beneficial, we have established a certain number of sanatoriums in the neighborhood of Paris, built by the Sociéte des enfants tuberculeuses de l'Hôpital d'Ormesson from private charity, and the station of Bevannes, supported by the Assistance publique.

There are also a certain number of clinics which exist in different localities of France. For example, the Service des rapatriés at Evian has established one, under my direction, in the mountains of Savoy, in which are also taken children with local tuberculosis for heliotherapy.

I have spoken up to this point of active tuberculosis in children. It is now my object to tell you what is done for those children affected with latent types of tuberculosis or simply suspected of the disease.

TREATMENT OF CHILDREN WITH LATENT TUBERCULOSIS

These are discovered by the various skin reactions and by careful examinations of the tracheobronchial glands, either by auscultation or by roentgenography. It is well known that these forms are frequent, and this is also true in France, where in a study of 4,000 schoolchildren from the poor quarters of Paris, made with Dr. Grancher, we discovered approximately 15 per cent. suspects. Florid tuberculosis is naturally not present, but it is among these children that such cases will develop, sooner or later, sometimes only after puberty. It is necessary that these remain in the country throughout the entire year, in order to be strengthened by country life.

We have for these only a half measure — the so-called vacation colonies. They each year take the children from the large cities for two months and transport them to the country. In the care of a number of children, this almost suffices more or less to retard the development of the malady; but it is only a compromise, for these children whom we have strengthened in two or three months, whose weight we have increased by 2 or 3 kilograms, sometimes more, return at once to their former unhygienic homes, in their narrow lodging without sun or air, with food often exceedingly bad, and usually accompanied by that fearful poison, alcohol. Nevertheless, it is a fine and useful work. The vacation colonies succeeded in 1912 in sending to the country 13,000 children. As an act of charity it is enormous: as regards its results, it is not sufficient.

It is necessary that those children already infected change their mode of life. It is necessary to transport them to the country, where they may be under medical surveillance. But it is not possible to place them all among the peasants, because there are certain children whose lesions are glandular and in whom open tuberculosis may declare itself at any moment. For them, it is better that they should be placed in an open air school—the open air school which has arrived at more or less complete perfection in different countries.

From this standpoint I can tell that the German Red Cross took the initiative. Its method is imperfect but nevertheless gives results. In the neighborhood of Charlottenburg, which is sandy and dry, there are great pine woods. All the pretuberculous children are each morning grouped together in their districts about the electric tramways, which have been especially organized for them and are supported by the Red Cross. They are thus transported in a half hour to the forest.

Nevertheless it is not a perfect method, because these children are returned in the evening to the family quarters, where they are to breathe all night that unhealthy air. If the father or the mother is tuberculous, they will certainly contaminate their children.

Professor Grancher had decided (and it is a thing which would have been realized if he had not been so soon taken from us) to create a sanatorium-school for this type of child. He wished to have established in the neighborhood of Paris schools which were at the same time hospitals. The children in these schools would have had a double ration of fresh air, rest and food, and a half one of work—the ideal, as I have said. He had elaborated a complete program which is still being studied, after five years, by the municipality of Paris, but its only outcome was the sending of a hundred children to a fresh air school before the war. There are always numerous demands on the budget, appeals, and no money to meet them. The city of Paris, however, is making a blunder in calculation, for if it would care for the children soon enough, it would eliminate osseous and glandular tuberculosis, and would also relieve itself of the much greater expense which falls on it with the necessity of sending the children to Berck or Hendaye or to some other hospital.

At Lyons there is one open air school with fifty children, due to the initiative of the Mayor, Mr. Herriot. They are all under the surveillance of physicians who examine them each month. Most excellent results have been obtained.

In regard to the possibilities for the Parisian children, two opportunities are offered: the type of open air school, only for the day, or what would be still more efficacious, a sanatorium-school. These are the ways open for charitable initiative.

Despite all our efforts, the proportion of tuberculosis remains considerable. Despite the care which we are giving, the precautions that we are taking with a certain number, the malady continues its fatal course, it develops and ends in the generalized forms, chronic suppurations, or the fearful meningitis which is so often a cause of death in children's hospitals. In the hospital with which I was connected as chief of clinic, l'Hôpital des enfants malades, one of the large hospitals of Paris, it causes three deaths a week. For the Congress of Rome I made a statistical summary which showed the results among the children before we became seriously interested in the problem. From these statistics one finds out of five or six children affected with tuberculosis three or more dying of tuberculous meningitis. They die, most often, toward the second year, at the time when the child is making rapid intellectual development. The proportion of deaths from tuberculous meningitis is truly dreadful; before making the summary I could not have believed it. There lies a frightful danger.

Tuberculosis, once in the body, can still be cured. It is cured more easily among the well-to-do classes, in whom all the necessary precautions can be taken, the child strengthened and costly apparatus supplied. It is almost impossible among the poorer classes, among whom the parents cannot make the necessary effort to care for their children. It is often necessary, too, to wait for them from three to six months before a child may be sent to Berck or to Hendaye, the resources of those institutions being all too meager for the number of patients to be cared for.

THE PREVENTION OF TUBERCULOSIS AMONG CHILDREN

Professor Grancher, even before the idea which we are now discussing, possessed one even more feasible and productive of marvelous results, because of its simplicity of consummation. Grancher believed that if it was important to cure tuberculosis, it was above all important to prevent tuberculosis—to snatch away the prey before its hand could close on its vic-

tim. At the time when the Germans were covering their country with sanatoriums, Grancher saw very clearly that this was not the correct formula, because the sanatorium which takes the sick mother or father and abandons the child to its more miserable surroundings is accomplishing relatively nothing in the fight against tuberculosis. The much desired serum for the cure of tuberculosis has not been found in spite of the careful researches in thousands of laboratories.

Because of this, the idea of Grancher of preventing contagion must be followed. In this problem of preservation, the work of Pasteur in silk culture has served as the basis. The great services rendered by Pasteur in the silkworm industry in 1860 are well known. They were the first researches to stimulate work on the human microbial infections.

Pasteur demonstrated that the silkworm disease was due to a germ: that this germ was deposited by the butterfly on the leaves where later the eggs would be placed, and that there was some sort of contamination in this breeding place, for the preceding generation had contaminated the area, and at the moment of hatching, the worm issuing from the egg at once fed on the germ. Pasteur saw clearly that the worm was not hereditarily infected with the disease, but that it was at the moment of hatching that it became infected. He then had the idea of disinfecting completely all the seed and of transplanting the eggs at once, as soon as laid, to appropriate places. The worm hatching in a noncontaminated place develops without the disease. It was thus possible to transpose the process of hatching of the silkworm, a national industry, and to save it from ruin.

It was this idea which inspired Grancher. He said that, in order to prevent tuberculosis when the father or mother is tuberculous and is running the risk of contaminating the children about them, it would be necessary to separate the children from the parents—to save the seed.

In this there is something which at first sight seems cruel—to separate the child from its parents. Nevertheless these unhappy parents to whom we address ourselves understand the situation very well and themselves ask us to save their children.

The idea of Professor Grancher was to place the healthy children in healthy families where they might be adopted, which families were as good as (and I may say many times better than) their natural families. This view seems shocking at first thought, but I really speak of those children of Paris whose fathers are sometimes alcoholic, the mothers too ill to care for them, and who are thus found abandoned to the gutter.

These children we transported to the chosen families, physically and morally healthy, and those who have had the futures of Apaches are regenerated and have become good French men and women.

METHODS OF THE ŒUVRE GRANCHER

In my position as secretary of the organization, I will explain as briefly as possible its methods. The first problem confronting Dr. Grancher was the method of finding healthy peasant families in the country. It was his idea to address certain men who were his former students, physicians in the country. They were well acquainted with the peasants who lived on the neighboring farms of their particular rural community. They could tell if the people were honorable, if they enjoyed good health and were capable of bringing up children confided to their care. They could tell if the peasants were well enough placed financially, which is an indispensable point, for we do not pay a very large price for boarding the child. It is necessary that these persons taking the children do not do so in the interest of money: we do not wish to make a business of the work, we do not wish professions: we wish only those persons who will take the children as companions. It is the country physician who chooses, frequently gratuitously, the house in which we place our children.

At the beginning we especially chose families possessing other children. We have since learned to recognize that this presents certain inconveniences: there are at times jealousies, rivalries, etc. More often now we take the homes of peasants which are so often seen, where the children are already married and established in life, families remaining alone, a middle-aged couple, happy at having the company of a child. I know of old peasants perfectly enchanted at having a little girl with them who, for instance, can read the newspapers to them. We do not object if they are not allowed to read too diverse facts. In this way we have made most excellent choices, and many physicians are able to designate to us from their own clienteles as many as thirty families of this sort.

We always place the brothers and sisters together, in this way not suppressing the family tie. Our organization serves as a sort of guardian—an intermediary between the peasant family and the Parisian family. The latter confides the child to us with the following formula: "You have designated such and such a family in the country: I confide by your intervention my child to Mr. Blank who will care for him as his own and who will occupy himself with his instruction and religious education."

Our organization takes children from 3 to 15 years of age. Children younger than that we accept only occasionally, placing them in a nursing home but in a special way. After having had a number of children, it sometimes happens that the exhausted mother develops tuberculosis. If this occurs we take all the children over 3 and under 13, treating the younger ones, if there are any, in a different way.

The children thus placed in the peasant families pass all of their school life with them, remaining our pupils even if the parents themselves disappear.

In cases in which the parents are cured, happy results to which we have contributed by taking their children, they are returned to them at the age of 13 years. We have thus assisted the parents in the up-bringing and instruction of their children, particularly the mother, who has not been obliged to occupy herself exclusively with them and has thus had an opportunity of being more easily cured.

We take only the healthy children. If they are ill, we refuse them without pity. It would be dangerous, indeed, to install among the country peasants children who could develop tuberculosis. We do not even take suspected children, those having the signs of latent tuberculosis. Those are sent to the vacation colonies or sanatoriums, or are placed in open air institutions, but are not placed with us. For them the ideal is the sanatorium-school, of which I have previously spoken. Further details are given in the brochures of the society.

We require a certificate stating that the father, mother, sister or brother is affected with tuberculosis, but that the child is healthy. Further, we ask for the birth and baptismal certificates in order to place the child in the religious surroundings desired by the parents.

The children supplied with their papers pay a visit to the central office of the organization. There they are outfitted with clothes, are operated on if necessary for adenoid vegetations in order to forestall throat infections, and then, in small groups they are conducted to their destination by the devoted women who serve as patronesses.

For the Parisian society we make use of the following regions particularly: A series of homes is at present at Lille, Toulouse, Montpellier, Dijon, etc. We have especially chosen the valley of the Boire, where life is comparatively easy, where one finds the peasants fairly well to do, and with good morals, who possess sufficient effects, fields and cattle, and who are not excessively alcoholic. The districts of Calvados and Manche would be superb if they were not ravaged by alcoholism. This factor also eliminates the use of the region of the Oise.

The children are seen daily, one may say, by the physician, who with a small motor car can make his round of country visits; he sees them on his route or passes by way of the school and requests information as to their condition from the teacher or again from the curé. Further than that, each year a certain number of us, either myself as general secretary, or others who wish to join me, make a complete tour of the colonies of our small protégés.

The results are unquestionably marvelous. Not one of our children has become tuberculous. I am wrong to say not one: since 1904 we have lost three children, who died of tuberculous meningitis in the first four weeks following their arrival in the society centers. That is to say, they were children who, despite appearances, had departed while incubating tuberculosis and died shortly after their arrival. One can be assured that, aside from these cases, our children have all been definitely saved from tuberculosis.

Aside from physical results, one can say that the moral and social results are most admirable. These children arriving in the country seem to be rejuvenated in some fashion in this healthy environment, coming as they do from the disgusting promiscuity of the purlieus of our great cities. Numbers of them who were almost little Apaches, for we take them from the most miserable surroundings, are absolutely transformed: more than that, they become robust peasants later.

When the children have reached the age of 13 years, if the parents are still living we ask them if they still desire their children. Many have so fully appreciated the service which we have rendered to them and to their children that they request us to find for the children a suitable place in the country.

The parents, at least those who are ill, are authorized to pass forty-eight hours with their children two or three times a year.

In case of the death of the father or mother, the surviving one occasionally recalls them. This is what usually happens if it is the mother who has survived the father, dead of tuberculosis.

As the danger of contamination no longer exists, we willingly return the children, frequently enough by that time beautiful children, happily fortified and strengthened for the rest of their existence. If it is the father who survives, since his home is now nonexistent, he is apt easily to forget the children and they are rarely reclaimed.

In this and other ways there remain for us a considerable number of children, in the first place, those who have become orphans. These are adopted, morally and actually, sometimes financially, by their foster-parents. We knew of such a family of country people, in the Cher, a home which enjoyed no children, and who recently said to us, "We have no children; if the little one is agreeable all that we have will be his."

One sees thus how these children are permanently attached to the country. We operate in the manner defined by Mr. Meline two or three years ago at a congress at which he presided and according to his views. This congress had for its object the very grave question of the depopulation of the country districts.

The Grancher Society renders a true social service, in preventing the propagation of tuberculosis, in giving to its children a good moral education, in making good future French men and women, and, as I have said, in often bringing them back to the life of the country, so much more healthy and normal than that of the large cities.

There is also, on the other hand, an economic result of which I will speak incidentally. To cure a case of florid tuberculosis is very expensive to a society, to the Assistance publique or to a private charity. For a patient cared for in a hospital or sanatorium, three years is usually necessary, with a minimum price of 4,000 francs ($800) a year, which makes a total cost of 12,000 francs ($2,400). On the other hand, for 400 francs ($80) a year at the maximum, we can take care of a child. Thus, from the economic point of view the Grancher Society realizes the highest comprehension of the fight against tuberculosis.

GROWTH OF THE SOCIETY

Our society is developing. It counted at its beginning twenty-seven patients. Before the war it counted 810. It is now reduced to 400. I may state that many of our children have entered the army and a certain number have died for France. Speaking only of the Parisian branch, it is certainly growing, thanks to the sacrifices of private charity and thanks also to certain subscriptions which are received from the government from the General Council and from the Municipal Council.

The provincial societies count, on their side, 290 children.

But what is 800 children in Paris or 290 in the provinces in comparison to the proportion of children fatally attacked by tuberculosis whom we cannot care for? It is nothing; it is only a demonstration: an experience. It would be necessary to save each year in Paris not 800 children, but 5,000, and consequently a larger number still for the rest of France.

The American Red Cross has been kind enough to interest itself in the Œuvre Grancher.

Following a visit to two of our centers in the neighborhood of Tours and Blois made by Dr. W. P. Lucas, chief of the Children's Bureau, and Prof. Salskar M. Gunn of the Rockefeller commission, the American Red Cross allotted to the Œuvre Grancher a sum

permitting us to take new children, divided among the rapatriés and the children of tuberculous soldiers.

The Œuvre Grancher has already placed a certain number of these children, who are regularly reached by a visiting nurse appointed by the American Red Cross.

That allows the society to develop its work for Paris, but of course not sufficiently at the present time. The committees of assistance to the tuberculous have been organized in each French department, and the American Red Cross and the Rockefeller Commission are furnishing them with aid for the organization of the different fields of activity—in constructing sanatoriums, dispensaries, etc. There exist actually eleven chapters of the Œuvre Grancher in the principal towns of the provinces, but we wish to organize them in every department.

This system will be, with that of the protection of infancy, the best means of saving the France of the future.

We are particularly grateful, my dear American friends, for the aid which you are giving, not only on the fields of battle, but also for the safeguarding of the new generations of France in order that, working with yours, she may continue her mission for humanity, in defending the right, the justice, and the liberty of peoples and of man.

SECONDARY TUBERCULOUS PERITONITIS

ITS CAUSE AND CURE*

W. J. MAYO, M.D.
ROCHESTER, MINN.

Tuberculous peritonitis is not a primary disease, but, like septic peritonitis, is symptomatic, having its origin in some local focus of infection. The most common sites of such local foci are the fallopian tubes in women, some part of the intestinal tract in both women and men, and the lymphatic glands and channels, especially in children. Occasionally the primary focus will be found in the stomach, the spleen, the liver, the gallbladder or the genito-urinary tract. To consider tuberculous peritonitis an entity, or to treat it as such, leads to confusion, whereas if it is looked on as a secondary process, due to some primary focus, we are led to search for the primary focus and to direct treatment leading toward cure.

REMOVAL OF THE LOCAL FOCUS

In 1904, in the Address on Surgery, presented before the Mississippi Valley Medical Association, I[1] called attention to the fact that when the local lesion could be found and removed in operating for so-called tuberculous peritonitis, a cure might be expected in a much higher percentage of cases than by the performance of a simple laparotomy, with or without medication, the latter being unsatisfactory at best. At that time I was particularly interested in the relation of tuberculosis of the fallopian tubes to tuberculous peritonitis, and reported in detail some cases in which simple laparotomy with the evacuation of fluid had been carried out from three to seven times with a reaccumulation of the fluid and failure to cure, followed by prompt cure after the removal of the tuberculous tubes. Murphy[2] pointed out that in tuberculosis the fimbriated extremities of the fallopian tubes were usually open, quite the opposite from the condition that exists in gonorrheal infection of the fallopian tubes, in which they are closed. In gonorrheal infections, therefore, pus tubes are common, while in tuberculosis, tubal retention is much less common, and the material from the tuberculous process passes out from the fimbriated extremity of the tube into the abdominal cavity, causing a more or less generalized peritonitis. Such peritonitis is essentially a conservative process leading to the destruction of the noxious agents. When the source of the infection can be removed, the peritoneum returns to normal. At a subsequent laparotomy the peritoneum will be shown to be quite free from disease and without signs of past involvement, beyond adhesions in some locality that had been subjected to prolonged infection, as in the vicinity of the primary lesion. It is true that simple laparotomy sometimes cures the peritonitis when tapping would be of no avail, because when the fluid is completely removed from the peritoneal cavity, for example by operation, the fimbriated ends of the tubes, which had been mechanically separated by the fluid from the surrounding tissues, may become adherent to neighboring structures, thus closing the ends and preventing further leakage. Under such circumstances, tubal retention of the tuberculous products results, and these pus tubes may be recognized as gradually increasing masses in the pelvis. Further experience developed the fact that the tube thus closed became surrounded by a mass of adhesions, and occasionally, in the course of long months or years, a spontaneous "near" cure resulted. The tubal content became caseated and was rendered more or less innocuous with the gradual disappearance of the pelvic masses, but with permanent fixation of the pelvic organs. The ciliated epithelium of the tubes, like the ciliated epithelium of the pulmonary tract, is very susceptible to tuberculosis. Whether the tubercle bacilli reach the tubes primarily through some other focus in the abdominal cavity and then gravitate into the pelvis infecting the tubes, or whether they pass directly by way of the vagina and uterus or through the lymphatics, is a mooted question.

Tuberculosis of the endometrium is rarely found in the menstruating uterus. When tuberculosis involves the endometrium, it is usually found in children before menstruation begins or in women after the menopause. If it occurs during normal menstrual life, menstruation will have ceased, although in its place there may be a bloody discharge, the result of the tuberculous lesions.

Fourteen years of experience since the publication of these observations has confirmed them in every respect, and it may be said that in tuberculous peritonitis which is the result of tubal tuberculosis, the removal of the fallopian tubes may be expected to cure, unless other incurable tuberculous lesions coexist. It is not at all necessary in such cases to remove the ovaries or the uterus, as their involvement is only superficial, and in no way different from that shown in the peritoneal coverings of the intestines and the other viscera.

Our knowledge of tuberculous peritonitis, the result of tubal disease, is fairly adequate; but, when the local lesion is elsewhere, great difficulty may be experienced in locating and removing the primary source of the

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* From the Mayo Clinic.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Mayo, W. J.: Surgical Tuberculosis in the Abdominal Cavity, with Special Reference to Tuberculous Peritonitis, THE JOURNAL A. M. A., April 15, 1905, pp. 1157-1160.

2. Murphy, J. B.: Tuberculosis of the Female Genitalia and Peritoneum, Chicago, 1903.

peritoneal infection. Rarely, in our experience, has the appendix alone been the cause of tuberculous peritonitis. Tuberculosis of the ileocecal coil, including the appendix, especially of the hyperplastic type, is often accompanied by tuberculous peritonitis which, as a rule, is limited to the immediate vicinity of the primary disease, and the removal of the involved bowel promptly cures. This is equally true of localized tuberculosis of the small intestine.

We have encountered a considerable number of cases of peritoneal tuberculosis, confined to the region above the transverse colon, in which the lesion was particularly marked in the vicinity of the gallbladder and the pyloric end of the stomach. In most of these cases the gallbladder, which had shown colecystitis, was removed; but we have not been able to determine that there were tubercle bacilli in the gallbladder or its contained secretion, nor have we found local lesions that might have been the result of focus in the liver. However, such patients, without exception, have quickly and permanently recovered. It is questionable whether such recovery might have taken place without the removal of the gallbladder.

Barker[3] estimates that 50 per cent. of cases of tuberculous peritonitis are due to bovine tuberculosis. It is interesting to note that the English Commission on Tuberculosis (1911) showed that tuberculous peritonitis was due to bovine tuberculosis in nearly 47 per cent. of the cases, and the German commission showed it to be due to this cause in 63 per cent. It is possible that bovine tuberculosis gives a more favorable prognosis than human tuberculosis.

SIMPLE LAPAROTOMY.

The possibilities of the cure of tuberculosis of the peritoneum by simple laparotomy, when the local focus cannot be discovered and removed, are limited to the ascitic forms of the disease. It may at least be said that an open operation with careful removal of all fluid, with or without medication, has therapeutic value. It would seem, however, that the surgical profession has been over enthusiastic in its praise of the simple operation. The fibroplastic types are benefited only if there are sacculations containing fluid; but operation is contraindicated when the adhesions fill the entire abdomen without collections of fluid, or if the collections consist of multiple small pockets filled with turbid tuberculous exudate containing pus. Operation in these cases with separation of adhesion is of little value, and often results in intestinal fistula. Fortunately the adhesion type of tuberculosis of the peritoneum giving rise to the swollen, hard (wooden) abdomen are most favorable for spontaneous cure.

It seems probable that tubercle bacilli alone tend to produce tuberculous peritonitis with a minimum of adhesions, and that to a considerable extent the adhesions are the result of a mixed infection; but as the pyogenic bacteria that are admitted with the tubercle bacilli are shorter lived, they disappear, leaving only the tubercle bacilli to be discovered at the time of operation. In several subacute cases of this description I was able to find not only a mixed infection but also localized pockets of pus, containing colon and other bacteria having their origin in the intestinal tract. Later, these pyogenic bacteria would have disappeared and only the tuberculous process would have been discoverable.

3. Barker, L. F., Editor: Monographic Medicine, New York, D. Appleton Co., 1916, **3**, 684.

Koenig,[4] in 1890, was the first to call attention to the value of simple laparotomy in the treatment of tuberculous peritonitis, reporting 139 cases with eighty-four recoveries. How long these recoveries lasted was not recorded. Shattuck,[5] in 1902, showed a medical mortality of 68 per cent. and a surgical mortality of 37.5 per cent. in ninety-eight cases of tuberculous peritonitis at the Massachusetts General Hospital. Two thirds of his patients were females. Wunderlich,[6] in 1899, collected 344 cases in which the patients were treated surgically, and 176 of whom were traced. At the end of three years only 26 per cent. of these were in good health. Bircher,[7] in 1907, collected 1,295 surgical cases, and found 69 per cent. of immediate cures; but only 31 per cent. of these patients were well after a year or more. Osler[8] noted 131 females to 60 males. Curiously enough, while all the surgical cases, and for that matter all the medical cases observed, show an excess of females over males, the postmortem findings show peritoneal tuberculosis to be more common in the male.

The English school has strongly advocated drainage following laparotomy for tuberculous peritonitis; but drainage has been almost abandoned in this country on account of the frequency with which mixed infection has followed, often with fistulas which became feculent. After laparotomy, as a rule, there is a reaccumulation of the fluid, which is said to have a higher opsonic index and therefore a higher resistance against tuberculosis than the fluid that was originally removed. The fluid reaccumulated directly from the blood has marked sterilizing properties.

It should not be forgotten that tuberculous pleurisy or tuberculous pericarditis may exist in conjunction with tuberculous peritonitis. When there is doubt as to whether or not an ascites is due to tuberculous peritonitis, the finding of fluid in one or both of the pleural cavities is strong but not positive evidence, as the same condition is found in Concato's disease. Chronic irritative peritonitis or chronic proliferative polyserositis, as described by Concato,[9] may be local or general. The spleen or the liver, or more often both, may be encapsulated, or the entire abdominal cavity may be involved with most extraordinary shortening of the mesentery of the intestine. The contracted intestinal tract may be covered with an adhesive membrane and be drawn close to the spine. Chronic ascites is usually marked. The peritoneum, in the later stages, may be a quarter of an inch or more in thickness and of a white color. In the more extensive cases, both pleural cavities are involved, and often the pericardial sac as well.

Pick's disease is undoubtedly only a syndrome, a subdivision of chronic proliferative serositis, in which the chief manifestation is cardiac crippling, due to pericardial adhesions, although Pick believes that the pleural and peritoneal involvements are results of changes brought about in the circulation by interference with cardiac action. In none of the cases of chronic proliferative peritonitis that I have seen was the diagnosis made until the abdomen

4. Koenig: Die peritoneale Tuberkulose und ihre Heilung durch den Bauchschnitt, Centralbl. f. Chir., 1890, **17**, 657-660; Verhandl. d. X. internat. med. Cong., 1890, Berlin, 1891, **3**, Part 7, pp. 31-47.

5. Shattuck, F. C.: Prognosis and Treatment of Tubercular Peritonitis, as Based on the Experience of the Massachusetts General Hospital for the Past Ten Years, Am. Jour. Med. Sc., 1902, **124**, 1-12.

6. Wunderlich, O.: Ueber die Misserfolge der operativen Behandlung der Bauchfelltuberculose, Arch. f. Gynäk., 1899, **59**, 216-276.

7. Bircher, E.: Die chronische Bauchfelltuberkulose; ihre Behandlung mit Röntgenstrahlen, Aarau, Sauerländer, 1907.

8. Osler, William: Principles and Practice of Medicine, Ed. 8, New York, D. Appleton Co., 1917, p. 180.

9. Concato, L.: Sulla poliorromennite scrofolosa o tisi delle sierose, Gior. internaz. d. sc. med., 1881, n. s., **3**, 1037-1053.

was opened, and I am confident that in my earlier experience the condition was confused with tuberculous peritonitis. However, some observers believe that tubercle bacilli are the causative factor. It is altogether probable that chronic proliferative polyserositis is frequently, if not usually, confused with the ascitic forms of tuberculous peritonitis. Except for the temporary relief of the ascites, laparotomy is of no value in Concato's disease. It is said that the fluid aspirated may be distinguished by chemical analysis from tuberculous fluid; this has not been confirmed in our cases. As to the frequency of Concato's disease, Fagge[10] states that he saw one case of ascites from this cause to three of cirrhosis of the liver.

It will be seen from this brief summary that the cases of tuberculous peritonitis, in which surgical treatment promises to be of great aid, rather naturally divide themselves into two groups: First and most favorable are those cases in which a definite anatomic portion or viscus of the peritoneal cavity is involved, such as the fallopian tubes, the ileocecal coil, and the appendix, which can be removed. Second, and less favorable, are those in which the peritoneal cavity contains a considerable quantity of fluid, occupying either the entire peritoneal cavity or a large part of it, or in which the fluid is contained in loculi composed of peritoneal adhesions, dividing the peritoneal cavity into compartments containing fluid.

ABSTRACT OF DISCUSSION

Dr. Robert T. Morris, New York: I think not quite enough is said about the follow-up treatment in cases of surgical tuberculosis. Whenever we care for surgical tuberculosis of any sort I like subsequently to send the patient to a 5,000 foot elevation in the mountains, then to the seashore, and give them the best of food. Now a very essential thing is the use of tuberculin, the old formula, used in connection with the follow-up treatment. I have had two cases of adhesive peritonitis in which the patients are now perfectly well. One was a patient of Dr. Besemer of Ithaca, supposed to be a case of abdominal tumor. I operated and believed the patient had malignant papilloma, and said that she had about six weeks to live. I forgot all about the case and a year later I met the patient, when she had gained 40 pounds and was apparently perfectly well. I realized then that she had had tuberculous peritonitis of this adhesive type. The second case was one which I operated on in St. Elizabeth's Hospital. Having in mind the Ithaca case, I removed a specimen which proved to be tuberculous, and this was confirmed by the subsequent history. We did not remove the primary focus, or find it, in this case. Under tuberculin and the influence of general, first rate follow-up treatment that patient has become perfectly strong and well.

Dr. Daniel N. Eisendrath, Chicago: I want to take up two features of Dr. Mayo's paper: First, what shall we do with tuberculous tubes? Up to about four years ago I felt as did Dr. Mayo. I then had an experience which made me wonder whether we were doing the proper thing in removing these tubes. I had a patient, a young girl of 17, unmarried, who had tuberculous tubes and a large secondary mass of tuberculous glands in the region of the sigmoid. We laparotomized her, intending to remove the tubes, but after section decided to leave them. She married later and to my surprise went through two successful pregnancies at full term. This made me rather wonder whether we had not better be a little conservative in removing tubes under those conditions. I have always been inclined to believe the other way. The second point is Dr. Mayo's experience of having very few cases of tuberculous peritonitis following tuberculous appendicitis. The opposite has been my own experience. I believe this is due to the fact that frequently the appendicitis attack and the tuberculous peritonitis symptoms are months apart; frequently the appendix is taken out at an earlier period, probably six months or a year before the patient is treated for tuberculous peritonitis, when, unfortunately, the appendix was not examined carefully. I recall several cases in which only microscopic examination showed submucous tuberculosis in the appendix. I have seen a number of cases in which the patients presented typical histories of tuberculous peritonitis and laparotomized them even when they had been appendectomized several years before. Evidently the focus had been at that time in the appendix.

Dr. Horace G. Wetherill, Denver: Our experience in Colorado would confirm the opinion just expressed by Dr. Eisendrath, that general tuberculosis not infrequently does follow what appears to be a primary focus in the appendix. I want simply, in addition to this, to substantiate what Dr. Mayo has said so impressively, that it is distinctly and definitely unwise to drain cases which have been operated on for tuberculous infection in the peritoneal cavity whatever the primary focus may have been. We have learned only within the last few years, apparently, how much resistance to infection the peritoneum has and how well it may take care of itself. If we drain these cases we are in definite danger of producing tuberculous adhesions, and furthermore, we run the very great risk of producing tuberculous fistulas in the intestine, because the intestine will ulcerate through to the drainage tube. Otherwise it would be protected by plastic exudate. In Colorado we take no risk whatever with the drainage tube.

Dr. Charles H. Mayo, Rochester, Minn.: In reference to what Dr. Morris said, it is true that operating on the dry adhesive type of peritonitis is of no advantage to the patient; but not that a bad prognosis should be given in such a case. Ultimately these patients are likely to develop tuberculosis in some other region. In writing the paper it was not the intention to say that appendiceal tuberculosis did not exist, but that it was more rare than other diseases that would cause it as a focus. It is more rare in the woman. Man makes up for the difference in that his genital tract gives him tuberculosis which does not extend into the peritoneum. The woman develops general peritonitis. Nature can deal with that if you take the fluids out. Take plenty of time and see that the fluids are out when the intestines are dropped down. Nature will then deal with the condition as in caseous glands. I am sorry that more of the large sanatoriums have not representatives here. If in such sanatoriums as Pottenger's in California, and that at Saranac Lake, where an enormous number of cases are handled, such treatment could be tried and the results checked up, it would be an advantage. Quantitative work in these days gives us real help. The mistake is sometimes made of regarding tuberculosis of the ileocecal coil as a primary tuberculous lesion of the appendix. We will often find the ileocecal coil making very little trouble. In opening the abdomen, if operation can be delayed until the primary fever is over, the cases do better than with operation at an earlier period. Patients will develop their own antibodies if you give them the opportunity. When you find the peritoneum covered with miliary deposits it is easy to differentiate between the discrete and the confluent. When the confluent form is present, there is your focus. When widely separated, the lesion is in the upper abdomen, but you cannot always find just where it is located.

10. Fagge, C. H.: Text Book of Medicine, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1902, **2**, 488.

Maternal Mortality.—The March number of the *Monthly Bulletin* of the department of public health and charities of Philadelphia gives a table of figures showing the comparative mortality of women in childbirth and after labor in certain foreign countries and in various cities in this country. It is shown that in 1916 Philadelphia, with a death rate of seven, or one in 143 births, had the highest rate of any city or country for which figures are available. In New York City the rate was 4.6, or one in 217; in Newark, 2.2, or one in 454; in Detroit, 3.7, or one in 270; in St. Louis, 5.2, or one in 192; in Cleveland, 5.6, or one in 180; in Boston, 6.5, or one in 153; in Baltimore, 6.8, or one in 147; in Buffalo, 3.2, or one in 312.

THE SIN OF TREATING SYMPTOMS

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The seven deadly sins were enumerated before the days of modern medicine or specialism. The sin of omission would then have been classed as venial; but now, omission is often deadly to our patients, and might be classed by modern moralists as unpardonable.

This paper is intended to report some groups of cases that have been improperly diagnosed by observing leading symptoms without taking the patient as a diagnostic problem and viewing him as a whole. Medicine is no longer a one man's job—it is team work. It is, indeed, rare for one to be able to diagnose an obscure case alone. Team work with its proper limitations is our hope for the best results. Diagnostic units are now essential. There is much truth in the saying that only the very poor and the very rich get proper medical attention. The poor may go to a well organized hospital, where a department chief collects all required data, proper diagnosis is made, and required treatment instituted.

The omission may be due to the lack of using one's own faculties. This fault has been hammered so long that one rarely sees the glaring errors once so common. The omission is more often the refusal to accept, or the inability to secure, outside help. I once heard of a physician who refused consultation, saying that a patient who had him needed no other physician. Such an egotist is a menace to the community. The men who refuse consultation fear for their own reputations and care very little for the welfare of their patients.

Jealousy has wrecked many a small mind. The real physician, the one who has only the good of his patient in mind, never fears roentigen-ray findings, laboratory results, dental examination, or specialists' reports. The specialist is with us to stay, and is most useful, but he must not be permitted to subsidize the whole patient to aggrandize the disease of one particular organ.

The clinician must not allow the laboratory or the specialist to make his diagnoses; if so, his days of usefulness are gone. These factors are only aids. One cannot always delay until the pathognomonic symptom appears. One who waits for the laboratory to find tubercle bacilli in the sputum before diagnosing pulmonary tuberculosis, will realize that he has waited too long to be of real value to his patient. The patient must be viewed as a whole, the laboratory and specialists' findings being subsidiary to one grand summing up. Who shall weigh these findings in the balance and be the final arbiter? The one who should be most capable is the practitioner or internist.

If in these case reports, some physician should recognize an old friend, I beg of him not to take it as a personal criticism. The intent is to point out one of those broad truths applicable to us all, and is in no sense personal or intended as petty criticism.

MISTAKES IN DIAGNOSIS

Group 1.—Many inoffensive appendixes have been operated on, many normal tubes and ovaries have been sacrificed and many useful gallbladders drained; many ptosed viscera have been stitched up or colons removed, and many healthy stomachs have had a new opening, only for some painstaking surgeon later to diagnose a diseased kidney and thus cure a long suffering and nervous patient.

CASE 1.—Mrs. W., aged 35, had a diseased heart, had been an invalid for many years, and was hysterical and unmanageable. She had attacks of vomiting and pain in the upper left side of the abdomen. These occurred every few weeks and she had been treated by some of the best physicians in Birmingham without obtaining relief. She was considered a neurotic. She had gone to one of our leading medical centers, where she had been given a rest cure, with some temporary relief. After changing physicians many times, she fell into my hands. A series of roentgenograms revealed ptosed viscera. One of our best surgeons removed several feet of her colon, an operation followed by temporary relief, only to see her relapse into her old attacks again. She was then seen by many surgeons and internists, all of whom assured her that she was a neurotic and that she should "quit her foolishness." Finally she found a surgeon who had her ureters catheterized, discovered a suppurating kidney, and removed it. This took place several years ago. She is now well.

CASE 2.—Mrs. D., aged 32, married, with two children, had definite deformities following a multiple neuritis, complicated by a severe attack of typhoid. At frequent intervals since the age of puberty, she had attacks of nausea and vomiting called indigestion, headaches, neurosis, etc. Finally her ureters were catheterized and she was found to have calculi in both kidneys. The stones were removed, and the operation gave much relief.

Group 2.—The Wassermann test alone will not aid in diagnosing all our indefinite and latent cases of syphilis.

CASE 3.—X., a man, aged 41, who had lived a strenuous and dissipated life without any previous history of syphilis, suddenly began to have jacksonian and epileptic convulsions. The blood Wassermann reaction was negative. He was treated for epilepsy. But the irregular pupils, the slightly slurring speech, the tremor, just discernible, about the lips, and a pleocytosis in the spinal fluid definitely labeled him a victim of early general paresis.

It has long been recognized that epileptic seizures appearing in the adult are often precursors of an early general paresis. Even focal infection and a neurosis due to menopausic changes will not always be sufficient.

CASE 4.—Mrs. S., aged 43, had found her health beginning to fail. Focal infection was suggested. The tonsils were removed and the teeth were gone over without improvement. The ailment was then diagnosed as a neurosis due to menopausic changes. When I first saw her, there were double choked disks and aphasia. The spinal fluid and the blood showed a negative Wassermann reaction. A diagnosis of temporosphenoidal tumor was made. At operation she was found to have multiple gliomas.

Group 3.—Prolonged rest and polypharmacy are no longer sufficient, if one is to secure the best results in definite chorea.

CASE 5.—H., a schoolgirl, aged 17, had her tonsils removed several years ago. She had been rather a delicate girl. She came to me with definite chorea. The chorea without tonsils was indeed puzzling. Her teeth were irregular and she had been wearing a brace to correct dental deformity. On examination it was found that she had definite pyorrhea. Rest in bed and the curing of the pyorrhea have restored her to health.

CASE 6.—L., aged 9, a schoolboy, came into my office on crutches. The right side suggested a mild hemiplegia. The case was easily diagnosed as chorea, with chronically diseased tonsils. Tonsillectomy and rest in bed cured the hemiplegia and chorea.

CASE 7.—S., a schoolgirl, aged 16, had often suffered during the winter from catarrh and colds. She was found to be

suffering from classical chorea. Removal of the tonsils and rest in bed soon restored her to perfect health.

Group 4.—Other things may suffice to relieve hyperthyroidism, rather than resort to the surgery of the thyroid gland.

Case 8.—Mrs. B., a housewife, aged 23, mother of two children, had had goiter for several years. When I saw her, the symptoms were tachycardia, tremors, an enlarged thyroid, von Graefe's sign, sweating, emotionalism, insomnia, a phobia of being alone, etc. The tonsils, which had given trouble for years, were removed. After two weeks in bed and a trip to the country for six weeks, she was markedly improved.

Case 9.—L., a barber, aged 20, had the ordinary symptoms of hyperthyroidism. He had suffered with tonsillitis every winter since childhood. His tonsils were removed and he was soon able to go on with his work without any further thyroid disturbance.

Group 5.—Let us beware of that old hobbyhorse we have so often ridden—a nervous breakdown from overwork. If we look closely, we shall find something else to account for the patient's condition.

Case 10.—Dr. D., aged 39, after a rather careful examination, had been sent to the seashore with his wife to recover from "overwork." His nervousness had increased and when I saw him, general paresis was easily diagnosed. He afterward died in the insane asylum.

Case 11.—B., a traveling man, aged 41, was considered overworked, notwithstanding his robust physical condition. The symptoms were irregular pupils, insomnia, depressed spirits and a ++++ Wassermann reaction. It was decided best to send him to an institution for treatment and confinement.

Group 6.—The last and largest group includes cases of oral infection, pyorrhea, and abscessed and carious teeth. Everybody is talking about oral infection and, perhaps, exaggerating its importance.

Case 12.—Mrs. C., housewife, aged 62, who had been a rheumatic for years, and was recently found to have high blood pressure, was suddenly seized with anginoid attacks. After about three weeks of waiting for death to claim her and of exhausting a large supply of amyl nitrite pearls, she was sent to a hospital and found to have abscessed teeth and diseased tonsils. These foci were removed, and she became a useful woman. Her intercostal neuralgia is now a harrowing memory to a very good doctor.

Case 13.—D., aged 45, a robust man of good habits, had severe rheumatic pains and intense, diffuse bronchitis, with asthmatic breathing. He was unable to lie down at night. On examination, he was found to have pyorrhea, with many abscessed teeth. Extraction of the teeth and treatment of the gums for a short time, followed by two weeks at the seashore, completely restored him.

Case 14.—L., aged 17, a clerk, had been troubled with a number of painful abscesses. An abscessed tooth was extracted. His general health improved and no furunculosis has since occurred.

Case 15.—O., a man, aged 66, who was in the insurance business, had a well defined arrhythmia. The heart sounds were almost inaudible, and the blood pressure was low. He experienced dyspnea on the slightest exertion, and his liver was enlarged. His spirits were markedly depressed. He was found to have five abscessed teeth, which were removed at two sittings. He has greatly improved, and the normal heart condition has been completely restored.

Case 16.—C., a man, aged 50, suffered from asthenia, from an intense depression of spirits, that was almost melancholia, from marked insomnia, and loss of appetite. He was practically bedridden. A number of severely abscessed teeth were removed, and he is making a slow but definite recovery.

Case 17.—C., a man, aged 67, had been troubled with a number of furuncles. He was found to have almost the same symptoms as the patients in the two foregoing cases. All his teeth had to be removed. He insisted on trying to attend to some business, which proceeding made his convalescence slow.

In the Hillman Hospital there are many of the adult and aged "down and out" class, who, in times past, have been healthy and useful citizens. As a rule their mouths and teeth have been grossly neglected. Their teeth are irregular, loose, carious and broken, and set in gums seething with pus. I have often asked myself the question, "Is there any connection between oral infection and being 'down and out'?"

Then comes the practical problem, What are we going to do about it? Prevention, by teaching oral hygiene, will help the future generation. But our own patients must be taken care of. Shall we deal with this pathologic condition radically or conservatively? Many deaths have been reported from too radical treatment. Apparently the best results are obtained by putting the patient to bed, clearing up the pathologic condition a little at each sitting, allowing from three to ten days between treatments, according to the amount of reaction and recuperation of the patient.

Is oral infection a passing fad? Perhaps we are reading too much into it. It is certainly easy to become too enthusiastic. To me it is one of the present problems in medicine, extending into all the specialties. We should, however, remember the plea to view the whole patient as a diagnostic problem. If we work and watch while waiting, oral infection will find its proper place in medicine.

CHRONIC SEPTICEMIC ENDOCARDITIS

WITH SPLENOMEGALY TREATMENT BY SPLENECTOMY

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In the face of a disease like cancer or sarcoma we accept our helplessness with resignation; but we chafe against our helplessness in so-called malignant endocarditis, for we feel that we should be able to master it, the disease being an infective process due to well known bacteria, which in other circumstances may be successfully combated. Dr. Libman has shown that patients suffering from this type of endocarditis may become bacteria free and yet succumb to the disease. If death were an early event, the failure of our efforts might be more readily understood; but the affection may last for months or even for one or two years, so that ample time exists for treating it, and yet nearly every case terminates fatally.

I shall not go into detail regarding the symptoms of the affection, with which the writings of Osler, Dock and Libman have made us familiar. The outstanding features are fever of long duration, which may resemble that of tuberculosis or malaria; anemia of varying intensity, sometimes so severe as to suggest one of the primary anemias; pains in the joints; petechial spots on the skin and mucous membranes; and a heart murmur. Albuminuria is common, and in later stages the signs of a true nephritis may appear. Abdominal pains, sometimes sudden in onset and suggesting embolic processes in the spleen or kidneys, are not infrequent. Cough and insomnia are often very troublesome. From the diagnostic point of view, the

heart murmur is the most important thing; it may be very faint or it may be loud and distinct. I have seen cases with mitral, with aortic and with pulmonic lesions; on the whole, however, I have gotten the impression that the aortic cases are the most frequent. The affection nearly always attacks a valve previously diseased as the result either of rheumatism or of some allied condition, such as tonsillitis or chorea. It may, however, have its starting point on an intact valve, as I have observed in gonorrhea and in one case of pneumonia, in which the pulmonic valve became involved. Such cases generally run a more acute course, with higher fever, and do not present so prominently the renal features. There is a primary chronic form of endocarditis, however, which in its course and termination is indistinguishable from that in which the lesion is a secondary one on a previously diseased valve.

One other feature is important, and that is the condition of the spleen. This organ is practically always enlarged, and in some cases so much enlarged that it becomes the dominant feature to the point of completely obscuring the underlying heart affection. It is of this group of cases, those characterized by a true splenomegaly, that I wish especially to speak. The spleen may extend down to the level of the umbilicus or even lower; it is smooth, rather firm and rarely tender, though often the seat of spontaneous pain. Such a striking enlargement may readily lead to a wrong diagnosis, especially to that of splenic anemia or of Banti's disease. It is easy to see why such a diagnosis might be made. There is the prominent spleen, the profound anemia, at times a striking leukopenia; and if a murmur is found, it will often be attributed to the anemia. Petechial hemorrhages, so valuable in the diagnosis, may be entirely absent throughout the long course of the disease.

I am inclined to think that in more than one case of so-called splenic anemia or Banti's disease treated by splenectomy, the condition was in reality chronic septicemic endocarditis. The leukopenia in a disease in which one would expect leukocytosis might readily, though erroneously, tilt the diagnostic scale in favor of splenic anemia.

Watching a number of cases in the last two or three years, and finding that neither autogenous nor stock vaccines, transfusions, drugs or other measures did aught to avert death, I began to wonder whether there was not some other factor besides the heart that was of importance in the fatality of the disease. Baehr,[1] Löhlein,[2] Ophüls[3] and others have called attention to embolic processes in the kidney. While these undoubtedly play an important rôle in the course of the disease, I believe it is wise to direct attention to the possible significance of the large spleen. The spleen is a filter for bacteria. Whether it kills them or only benumbs them, leaving their final execution to the liver, is not definitely known. Bacterial filtration is not a passive process, but according to Rosenow, and to Ozaki,[4] it is dependent on vital activity of the cells, on a selective action on their part, a bacteriotropism. The filtration causes an accumulation of bacteria in the spleen which leads to hypertrophy, a sort of work hypertrophy, as William Mayo calls it. Through the multiplication of bacteria, and perhaps through their subsequent autolysis, increased quantities of toxins are thrown into the circulation. Moreover, living bacteria are often present in old infarcts of the spleen, as shown by Ophüls.[5] In these ways an infectious disease may be kept up and perpetuated, although the primary focus is no longer existent or active. An example or two will serve to illustrate this point. In syphilis the spleen at times is greatly enlarged, and in such cases antisyphilitic treatment does little or no good, probably because the spirochetes are well protected in the spleen pulp and tissues. Removal of the spleen brings about a cure, especially if it is followed by a course of antisyphilitic treatment. In chronic malaria the blood is often free from plasmodia, while the spleen shelters them in enormous numbers.

May not therefore the long continued existence of bacteria in the spleen in endocarditis be the principal reason why the so-called bacteria-free cases go on to a fatal termination? If we could get rid of the large disease-harboring focus represented by the spleen, it might be possible to deal with the bacteria present in the heart valves. Enough antibodies might be developed to destroy them; while as long as the spleen continues to pour toxins into the blood, the body, as we know only too well, can never make any headway.

There is another factor to be considered. Enlargement of the spleen is brought about chiefly by a proliferation of cells, to a lesser degree by an increased blood content. This proliferation, according to the theory of cellular toxemia which I[6] proposed several years ago, causes the pouring into the circulation of enormous quantities of metabolic products that have to be handled by the liver and other organs and tissues.

In view, therefore, of the hopelessness of our treatment of chronic septicemic endocarditis, and in view also of the value of splenectomy in other infectious diseases—as in syphilis, malaria, and in splenic anemia, if that be infectious—I believe we are warranted in removing the spleen in cases of septicemic endocarditis in which the organ is enlarged. In this connection it should be remembered that, as William Mayo[7] has pointed out, enlargement of the spleen may exist even though the organ cannot be palpated.

On the basis of these thoughts we undertook the operation in one case, and while the ultimate outcome was not all we had hoped, failure was due to an unusual complication which caused the patient's death some time after the operation.

REPORT OF CASE

I. F., a man, aged 57, a patient of Dr. H. B. Shmookler, had been failing in health for a year. In the past four months he had a more or less continued fever, associated with joint pains but without joint swellings. His spleen had been enlarging, at first gradually, of late more rapidly. A profound anemia had coincidentally developed. From time to time there had been attacks of sharp pain in the left hypochondrium. At no time had he had any hemorrhage from the nose, mouth or bowel. Twelve years before, following an injury to the head, he began to have epileptiform seizures of jacksonian character, which later gave place to attacks of petit mal. When I saw the patient, Oct. 31, 1917, I found him exceedingly pale and weak. The heart was somewhat enlarged and there was a systolic murmur at the mitral area transmitted into the axilla. This murmur I

1. Baehr: Am. Jour. Med. Sc., September, 1912, p. 327.
2. Löhlein: Arb. a. d. path. Inst. zu Leipzig, 1907, No. 4.
3. Ophüls, William: Nephritis, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1719; The Etiology and Development of Nephritis, Oct. 13, 1917, p. 1223.
4. Ozaki, Y: Jour. Med. Research, 1917, **36**, 413.
5. Ophüls, William: Nephritis, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1719.
6. Riesman, David: The Cellular Factor in Infectious Diseases, THE JOURNAL A. M. A., Feb. 20, 1915, p. 649.
7. Mayo, W. J.: Reports from the Mayo Clinic, 1916, **8**, 628.

learned had existed for many years. Petechial spots were present over the legs. The most striking feature, however, was an enlarged spleen which extended to the level of the umbilicus. A blood examination revealed: hemoglobin, 45 per cent.; red cells, 2,220,000; white cells, 4,800, with 82 per cent. polymorphonuclear cells. Considering the case to be one of septicemic endocarditis with splenomegaly, I advised removal of the spleen preceded by transfusion. Two transfusions were done, the second, which was of appreciable benefit, Feb. 3, 1918. February 5, the patient was admitted to the Lankenau Hospital, where an immediate blood count revealed: hemoglobin, 40 per cent.; red blood cells, 2,020,000; white blood cells, 4,450; polymorphonuclears, 80; lymphocytes, 6; large mononuclears, 8; transitionals, 6; eosinophiles, 0.

The urine was yellow; of acid reaction; specific gravity, 1.015, and showed albumin, a faint trace; sugar, none; urea, 1 per cent.; bile, 0; indican, 0; diacetic acid, 0; acetone, 0; many granular casts; epithelial cells; white blood cells.

The phenolsulphonephthalein test resulted as follows: the first hour, 7 per cent.; second hour, 12 per cent.; third hour, 14 per cent.; total, 33 per cent.

The blood urea was 65 mg. per hundred c.c. of blood.

February 6, the spleen was removed by Dr. Deaver under ether anesthesia. It was found to be enormously enlarged and adherent to the diaphragm at the upper pole.

The spleen with blood weighed 1,570 gm.; without blood, 1,160 gm. The surface showed two scars, evidently the result of infarction. Dr. Reimann, pathologist of the Lankenau Hospital, reported on the microscopic examination: "The spleen is not the spleen of Gaucher's disease, Banti's disease, malaria, tuberculosis, syphilis, Hodgkin's disease, or the leukemias. There is endothelial hyperplasia, diffuse around the blood sinuses, just as in the ordinary acute splenic tumor, e. g., typhoid. The inference is that the patient had a long standing infection of very low virulence or a long standing toxemia."

The day following the operation the hemoglobin rose to 50 per cent. and the red cells to nearly 4,000,000 from 2,020,000. At the end of a month the hemoglobin was 55 per cent. and the red cells just under 3,000,000, and the leukocytes had risen to 6,250, with 68 per cent. polymorphonuclears instead of 80 per cent.

On the ninth day the stitches were removed, but there was no healing and the patient eviscerated himself. The bowels were reduced and the wound closed under chloroform anesthesia. No infection ensued.

After the operation the patient improved amazingly in appearance; his hands were no longer cold, and he lost the yellowish cachectic pallor which had been such a striking feature. Both Dr. Deaver and Dr. Shmookler feel that the operation justified itself by the improvement that followed.

March 9, the patient began to have trouble with his larynx and extreme difficulty in breathing. Dr. Butler, on examination, thought there was an abscess of the larynx. Before anything could be done, the man died.

COMMENT.

The man thus lived a month after the operation; and notwithstanding the fact that he had eviscerated himself and had to have a second operation, his general condition as well as the blood showed a decided improvement. While we do not know what would have happened had the laryngeal abscess not supervened, it is reasonable to suppose that the improvement would have continued.

I have reported this single case in the hope that the operation may be undertaken by others.

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Overweight at 50.—There is every reason why a man who is overweight at 50 should reduce until he reaches the weight he was when he was 35. According to Fisk he is a better insurance risk if after 35 he is under the weight which is the average of those of his years.—Lusk, Food in War Time.

A CLINICAL STUDY OF FIVE HUNDRED CASES OF CHOLECYSTITIS

WITH SPECIAL REFERENCE TO DIAGNOSIS

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We live in an age of conservation. Every newspaper we pick up contains articles on the conservation of food, of clothing, of fuel; in fact, we are urged and taught to conserve all the resources of this bountifully productive land, but we see and hear very little on the conservation of the nation's greatest asset, the conservation of human life.

We live in an age of preventive medicine, and although we are not yet able to prevent a great many diseases, we, as physicians and surgeons, frequently are in a position to prevent complications of diseases and through opportune intervention prevent a serious, if not fatal, outcome, thereby doing our bit in the conservation of human life.

While looking over the mortality records for the last five years, and the causes of death in our clinic at Bismarck, I was impressed with the fact that a large percentage of these deaths were preventable, provided these patients had received earlier attention. Some died without operation, while others submitted to surgery as the only possible means of recovery. I refer particularly to the acute intra-abdominal lesions, namely, appendicitis, gastric and duodenal ulcers, and cholecystitis.

We are all familiar with the importance of early diagnosis and surgical treatment of acute appendicitis and perforating gastric ulcer, but I do not think that the profession at large has been strongly enough impressed with the importance of early operations for the relief of gallbladder inflammations and their results. It is especially cholelithiasis and active cholecystitis to which I wish to call attention, not only because of the suffering they entail, but also because of the more serious consequences which have not been sufficiently emphasized and which swell our mortality rate, namely, cancer of the gallbladder or ducts, rupture of the gallbladder with septic peritonitis, empyema of the gallbladder, suppurative cholangeitis, abscess of the liver, hepatitis, pancreatitis and other less serious complications, all of which can be averted by an early diagnosis and operative treatment.

The practice of waiting for further developments, for the appearance of jaundice to verify the diagnosis, or until direct danger to life is evident, is still too general.

Realizing that many lives are thus sacrificed that might be saved, and that the voice of the internist is sometimes heeded by the general practitioner and the patient more than that of the surgeon, I thought that this report might be of help to those who are still holding back, as well as to those on whose diagnostic skill and judgment depend the welfare and the lives of a great many people. I have, therefore, reviewed the histories of the last 500 cases of inflammation of the gallbladder in which operation was performed in our clinic either by Dr. Quain or by Dr. Ramstad, and have tabulated the symptoms as they were recorded at the time these histories were taken and the patients referred for operation. According to Table 1 it will be seen that the diagnosis of gallbladder disease rests almost entirely with the anamnesis, and the patient will

frequently relate the history of an attack of colic which is so definite that it seems almost stereotyped.

The reason so many cases of cholecystitis or cholelithiasis are taken, or rather mistaken, for disease of the stomach is that disease of the gallbladder produces symptoms that are referable to the stomach. These are reflex symptoms, and they are in no way related to the taking of food—a fact of which we must never be forgetful—and yet hardly a day passes by on which patients do not present themselves at our clinic with a typical gallbladder history, but with a previously made diagnosis of acute gastritis, gastralgia, gastric catarrh, dyspepsia, indigestion and other erroneous names. I have divided this series of 500 cases into two groups, namely, those in which stones were found, and those in which no stones were present, but in which the examination indicated a pathologic condition of the gallbladder. In the first group there were 340 cases and in the second 160.

TABLE 1.—SYMPTOMS IN FIVE HUNDRED CASES OF INFLAMMATION OF THE GALLBLADDER

	Cholelithiasis, 340 Cases		Cholecystitis, 160 Cases	
	No.	Per Cent.	No.	Per Cent.
Tenderness	292	86	150	94
Belching	271	79.7	107	67
Vomiting	269	79.1	76	47.5
Cramps, radiating	244	71.8	61	38.1
Dyspnea	243	71.8	63	39.4
Epigastric distress	117	34.4	72	45
Prostration	96	28.2	7	4.4
History of Jaundice	79	23.2	13	8.2
Cramps, not radiating	69	20.3	84	52.5
Bile in urine	59	17.3	3	2
Sex	M. 36, F. 304		M. 40, F. 120	
Parity	0 to 15, average 6		Average 5	
Gastric Acidity	0 to 100; average: free, 24; combined, 18.		Average: free, 35; combined, 17	
Duration of illness	1 month to 26 years		1 month to 37 years	
Time of day	Day, 2%; night, 10%; day and night, 88%		Night, 6%; day and night, 94%	

SYMPTOMS

Tenderness.—The most constant symptom in this series was tenderness over the gallbladder region, and it was present in more than 86 per cent. of the cases with stones, and more than 94 per cent. of the cases without stones. The degree of tenderness depends on the severity of the inflammation and the degree of distention of the gallbladder. The most satisfactory manner of eliciting this symptom is the following: The examiner places his left hand firmly, with the palm up, in the patient's right flank, and the tips of the fingers of his right hand below the right costal arch over the region of the gallbladder. The patient is then asked to breathe deeply. On expiration, when the abdominal muscles are relaxed, a sudden pressure upward with the right hand is made. If the gallbladder is distended a sharp sting is experienced by the patient, which manifests itself by a typical expiratory "catch" or "grunt." Pressure over an inflamed empty gallbladder also causes pain, but not of so stinging a character. During active inflammation or during an attack of colic the gallbladder is extremely tender, and there is present marked muscle spasm, the result of a local peritonitis.

Belching.—Gas often troubles during the attack and gives the sensation of bloating and upward pressure, and is relieved only by eructations. It was positive in approximately 80 per cent. of the cases with stones, and in nearly 67 per cent of the cases without stones. In gastric ulcer we frequently find belching, and it is claimed by some authorities that it is of no significance in differentiating ulcer from cholecystitis. My experience has been entirely different, as is shown by the high percentage of positive cases in our series. Of particular importance is the fact that belching in cholecystitis is independent of the taking of food; it may be most pronounced between meals, often coming on suddenly, of short duration and followed by prompt relief from the annoying bloating, distress, upward pressure, etc., whereas in ulcer it usually occurs at a specified time after meals and disappears when gastric digestion is completed.

Vomiting.—Infections of the biliary tract are frequently accompanied by antiperistalsis, bile is regurgitated into the stomach, and because of its emetic qualities there is vomiting or nausea, the vomitus nearly always consisting of bile. Of the 269 cases, in twenty-eight, or slightly more than 10 per cent, there was nausea without vomiting, while in thirty-four of the seventy-six cases without stones, or approximately 45 per cent, there was nausea without vomiting. Sometimes the vomiting will relieve the attack the same as in gastric ulcer, but often the patient keeps on vomiting until the bile ceases to flow into the stomach. I have made it a rule—and it has served me well—that whenever vomiting is present in an upper abdominal lesion, and an obstruction of the pylorus can be excluded, to look to the gallbladder as the offending organ.

Radiating Cramps.—When the gallbladder becomes overdistended from obstruction of the cystic duct or the common duct, there occurs sudden severe epigastric pain with radiation either to the right costal arch or to the left, and through to the back or the region of the shoulder blade, or to the right or left shoulder, which, after a longer or shorter terrific spell, ceases as suddenly as it appeared. It is of a sharp, lancinating character, coming on at irregular intervals, by day or by night, often bears no relation to food, and is without apparent cause. This is the typical gallstone attack, and was found present in 244 patients with stones, or in 71.8 per cent. of the first group, and in sixty-one, or 38.1 per cent., of the second group. There are many variations in the character of the pain, in its radiation and in its severity. Although no definite knowledge can be gained by it as to the location of the stones, I have often seen a cystic duct stone at operation when the pain radiated to the left costal arch.

I use the word "cramps" for these pains, because its use has often brought out a typical gallbladder history, which otherwise would have been difficult or impossible to get. This is particularly true of the German and Russian patients who present themselves with an indefinite stomach history, and seem altogether forgetful of the attacks of *Magenkrampf* or *Mutterweh* from which they suffered ten or twenty years ago, but which are promptly recalled by the use of these expressions. As a rule, the attacks of colic due to cholelithiasis are more severe, and when they cease there is usually sudden return to health; whereas in cholecystitis the attacks are less severe, but of longer duration, with a succeeding soreness which lasts sometimes several days.

Dyspnea.—Deep respiration gives pain during an attack of colic, and there is a subsequent spasm of the diaphragm which allows only a limited excursion, causing a marked shortness of breath. The pain is sharp and stabbing, and is frequently mistaken for pleurisy or pneumonia. As soon as the attack of colic is completed the dyspnea disappears, and the patient is able to breathe with little or no discomfort.

Epigastric Distress.—Many of the patients with chronic cholecystitis come for advice for stomach trouble, the reflex symptoms of digestive disturbance causing far more annoyance than the local gallbladder manifestations. A great many of our series, 117, or 34.4 per cent., of the first group, and seventy-two, or 45 per cent., of the second group, gave a history of epigastric distress, which characterized itself by its irregularity of appearance. It may vary in degree, and all foods cause distress, which is not influenced by soda or acids, but usually by belching or vomiting. As a whole, epigastric distress is so much like that of ulcer or other stomach trouble that no conclusion can be arrived at until careful questioning brings out the fact that the patient has had recurring attacks of severe pain in the pit of the stomach, accompanied by much gas and bloating, which puts us at once on the track of a correct diagnosis.

Prostration.—During an attack of gallbladder colic there are often great anxiety and free perspiration, and the patients have a feeling of impending death, and without being asked the direct question they frequently make the statement, "I thought I was going to die." This symptom is present much more frequently when there are stones than in cholecystitis without stones; but in either case when it is present it is almost pathognomonic of gallbladder obstruction. This feeling of impending death was recorded in only ninety-six, or 28.2 per cent., of our series of stone cases; but I am confident that it will be found present in a much larger percentage of cholelithiasis cases if careful inquiry is made. I never omit the question in the anamnesis in suspected gallbladder cases, and it has frequently helped me out when the diagnosis was in doubt.

History of Jaundice.—When we have radiating pains in the epigastrium followed by jaundice, our diagnosis is nearly always made for us. About 23.2 per cent. of our stone cases gave a history of jaundice following one or more of the attacks, while in the cholecystitis group only thirteen, or 8.2 per cent., gave such a history. The jaundice is nearly always due to duct obstruction, mostly of the common duct. If a patient has a colic that is followed by jaundice, the colic was caused by the moving of a solid body or by an obstruction due to adhesions. If the jaundice comes first and then the colic, it is presumably due to an infection or a neoplasm. Many patients give a history of only one attack of jaundice, although they suffered from colic many times a year for many years. The jaundice may vary from a yellowish tinge of the conjunctiva to a dark-green discoloration of the entire body.

Cramps Not Radiating.—In only 20.3 per cent. of our stone cases was there a history of epigastric cramps that were not radiating, while in 52.5 per cent. of the cholecystitis cases without stones there were cramps in the epigastrium that did not radiate. It will then be seen that nonradiating cramps in the epigastrium, when accompanied by other gallbladder symptoms, favor the diagnosis of cholecystitis rather than cholelithiasis. These cramps must not be confounded with epigastric distress; they are severe, lancinating pains, but do not radiate to the back or shoulders.

Bile in the Urine.—If we had a chance to examine the urines in all cases of gallstone colic within the first twenty-four hours after an attack, approximately 80 per cent. would react positively to bile. In our gallstone cases only 17.3 per cent. gave a positive reaction, while in only 2 per cent. of the cholecystitis cases bile was found. This small percentage is due to the fact that we see very few patients during or immediately after an attack, although in most cases they give a history of a dark brown urine immediately after the attack of colic.

Sex.—Statistics vary greatly as to the percentage of men and women suffering from cholecystitis. In our series we found thirty-six men and 304 women, or one male to nine females harboring stones. Of the second group, or that without stones, the proportion of men was much higher, namely forty males and 120 females. This would lead one to believe in the theory of bile stasis in the gallbladder due to pressure either from tight bands, apron strings or the like, rather than in that of infection, because most of our stone patients were fleshy women who were in the habit of wearing aprons with tightly drawn strings.

Parity.—Of the stone cases in the first group, seventeen women were nulliparas, and the highest number of births was fifteen, the average being six, while in the second group the average was slightly lower, namely, five. Whether or not pregnancy is an etiologic factor in gallstones has not been proved, although many patients experience their first attacks during a period of pregnancy—probably the result of a stasis due to pressure from below.

Gastric Acidity.—At a recent medical meeting I heard a discussion on the gastric acidity in gallstone disease that amused me very much. One eminent clinician found the acidity above normal, while another physician of equal renown found a low acidity. In an analysis of our cases I found the acidity varying from a hydrochloric acid deficiency to 100 per cent. The average for the first group was free hydrochloric acid 24, combined 18, or slightly below normal, while in the second group the average was free hydrochloric acid 35, combined 17, or slightly above normal. In the acute cases there was usually hyperacidity, while in the chronic there was nearly always a low acid content.

Duration of Illness.—This factor is of no particular interest from a diagnostic standpoint, yet it is interesting to note that the patient who suffered from the disease for thirty-seven years presented no stones at the operation. Whether or not the stones were passed into the bowel is a matter of speculation; yet, it seems barely possible that one should suffer attacks for that long a period without the formation of gallstones. The shortest period of suffering was one month.

Time of Day.—In the first group, 88 per cent. of the patients had attacks both day and night; 10 per cent. had only night attacks, and 2 per cent. suffered in the day time. In the second group, 94 per cent. suffered both day and night, and 6 per cent. had only night attacks.

Of the 340 cases of cholelithiasis, fourteen were discovered during the progress of some other operation; but in nearly all of these close inquiry after the operation brought out an unmistakable gallbladder history.

In studying the symptoms of our series of cases, certain conclusions were arrived at which warranted tabulation of the symptoms in groups or combinations, and I believe that a careful analysis of these combinations will be of immense help to us in arriving at a proper diagnosis of gallbladder disease. I have taken the five most prominent symptoms and have called them the "five cardinal symptoms" of cholelithiasis (Table 2). I have omitted "tenderness" and "epigastric distress" because they can be demonstrated in so many different diseases of the upper abdomen, and have therefore much less value as a diagnostic factor.

Since in this article I am taking up only the early diagnosis of cholelithiasis and cholecystitis, I have refrained from mentioning symptoms of complications and sequelae because the disease should not be allowed to progress to this point.

AIDS IN DIAGNOSIS

Regarding the roentgen ray as an aid in the diagnosis of gallstones, I will say that our experience has not been very encouraging. All our gastro-enterologic patients are sent to the roentgen-ray laboratory for examination, but the results, so far as the diagnosis is concerned, are rather discouraging. Such men as Case, Pfahler and George assert that they are able to demonstrate gallstones with the roentgen ray in from 50 to 85 per cent. of their patients. If these reports are correct, their work must certainly be commended. Their success is due to the fact that a great many plates are made which vary in density, one from the other, by variation in the exposures and the employment of a different intensifying screen for each plate. This, of course, entails a large expense, as well as a great deal of time, and we have consequently discontinued the search for gallstones by this method in our clinic. When the patients give a definite history of cholelithiasis, even though the roentgen-ray findings are negative, they are referred for operation because negative roentgen-ray findings do not exclude gallstones.

TABLE 2.—CARDINAL SYMPTOMS OF CHOLELITHIASIS

Groups of Symptoms *	Cholelithiasis		Cholecystitis	
	No.	Per Cent.	No.	Per Cent.
1 and 2	202	59	34	21.2
1, 2 and 3	189	55.6	29	18.1
1, 2, 3 and 4	173	50.9	22	13.8
1, 2, 3, 4 and 5	82	24.1	7	4.5
1, 2 and 4	172	50.6	26	16.2
1, 2, 4 and 5	82	24.1	9	5.6
1, 2 and 5	82	24.1	9	5.6

* In this column, the numbers indicate: 1, radiating pains; 2, vomiting; 3, belching; 4, dyspnea; 5, prostration.

The duodenal tube of Einhorn, which he says will often help out in the diagnosis of cholecystitis, I have used in approximately 100 cases with very uncertain results, and it has helped me to make a diagnosis in a very small percentage of our patients. I have found infected bile and mucus in an apparently normal gallbladder, and on the other hand I have recovered sterile bile, "golden yellow," etc., in patients who at operation showed gallstones.

CONCLUSIONS

From a consideration of all of the foregoing facts, it is logical to assume, in order to get the most successful results, that early surgical treatment is indicated in gallbladder disease, and that in order to be able to operate early, an early diagnosis is essential. From a study of this series of cases with reference to the more modern roentgen-ray and laboratory aids in diagnosis, I have drawn the conclusion that the older methods of diagnosis are still the ones on which we must rely. A complete history of the patient's complaint, elicited with the most painstaking efforts, particular attention being paid to the previous personal history, and intelligent use of the eyes, ears and fingers being practiced, together with the keen judgment of interpreting the facts, is still the paramount method in diagnosis.

In 90 per cent. of all cases of cholecystitis and cholelithiasis a correct diagnosis can be made from the history alone, and in more than 95 per cent. of these cases the diagnosis of gallstones is an established fact when the "five cardinal symptoms" are present.

THE CIRCULATION OF ARSENIC IN THE CEREBROSPINAL FLUID *

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The infrequency with which arsenic has been found in the cerebrospinal fluid, following the intravenous injection of arsphenamin, forces the conclusion that this dye does not as a rule pass from the blood into the cerebrospinal spaces. Barbat[1] believes that the transition is aided by drainage of the lumbar cistern shortly after the injection. By this technic, he was able at the end of twenty-four hours to demonstrate 0.25 part of arsenic per million in twenty-three fluids of twenty-six examined. His deduction, however, is vitiated by the fact that, as early as twenty minutes after the intravenous injection, and unaided by the auxiliary puncture, 42 per cent. of the fluids examined showed 0.20 part of arsenic per million, which is practically as much as was found in twenty-four hours.

The results reported in Table 1 are based on an examination of 123 cerebrospinal fluids collected from random neurosyphilitic patients, at arbitrary intervals following the intravenous injection of from 0.3 to 0.6 gm. of arsphenamin. The analytic method used is a refinement of the Marsh technic and permits the quantitative recognition of a micromilligram of arsenous oxid, as a characteristic mirror. The attempt was made to exclude possible sources of contamination in the collection of the fluids. Controls were run with the fluids of patients, not under active treatment, and each determination was preceded by one or more blanks.

TABLE 1.—RESULTS OF EXAMINATION OF SPINAL FLUID

Interval After Injection	Samples Analyzed	Positive	Negative	Aver. Mg. Arsenous Oxid in 1 C.c.
5 min.	2	0	2	0.00
20 min.	1	0	1	0.00
30 min.	6	1	5	0.10
45 min.	3	0	3	0.00
1 hr.	29	19	10	0.18
1½ hr.	23	4	19	0.18
2 hr.	35	15	20	0.17
3 hr.	7	0	7	0.00
5 hr.	2	0	2	0.00
6 hr.	3	0	3	0.00
7 hr.	4	0	4	0.00
23 hr.	8	0	8	0.00

It is thus seen that of 123 fluids, the arsenic contents of thirty-nine became appreciable within one or two hours. Whether the fluids found negative were so because their arsenic contents at the time of collection had not reached the limit of delicacy of the analytic method or because they had already depreciated there-

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* Because of lack of space, this article is abbreviated by omission of a table of findings. The complete article will appear in the reprints, a copy of which may be obtained from the authors.

1. Barbat, J. H.: Permeability of the Meninges to Arsenic in Paresis and Tabes, THE JOURNAL A. M. A., Jan. 19, 1918, p. 147.

from cannot be stated. Also, because of the few samples collected at intervals beyond two hours, it cannot be concluded from these data that no arsphenamin passes into the cerebrospinal fluid after the second hour or that it does not remain there in appreciable amounts for periods longer than one hour.

The recent work of McClendon[2] suggests that the cerebrospinal fluid is an ultrafiltrate of the blood. Its arsphenamin concentration at the place it is formed must then progressively decrease with that of the blood. Adler and Wetmore,[3] using the same analytic method as did the present authors, found that at the end of one hour, following the intravenous injection of 0.6 gm., 80 per cent., of the drug had disappeared from the blood stream. In three hours 98 per cent. had gone, and the concentration of arsenous oxid was only from 0.25 to 0.50 mg. per cubic centimeter. It seems probable, therefore, that the arsphenamin concentration of the cerebrospinal fluid attains its maximum during the first hour. This probability is strengthened by consideration of what happens when arsphenamin is intrathecally introduced by the Swift-Ellis technic. Twelve c.c. of blood serum drawn one hour after the intravenous injection of arsphenamin, and fortified by the addition of 0.3 mg., represents about 150 mmg. of arsenous oxid. Two hours after its introduction, the fluids of three patients examined showed less than 0.05 mg. of arsenous oxid per cubic centimeter. By the latter technic, therefore, a maximal concentration of 1.2 mg. of arsenous oxid per cubic centimeter of cerebrospinal fluid may be obtained and maintained for a period certainly not over two hours.

It is now fairly definitely established[4] that the cerebrospinal fluid filters through the arachnoid villi into the greater sinuses, and the absorption from the cranial subarachnoid space is held to be much more rapid and greater in amount than from the spinal portion. Also, there is said to be an accessory drainage of the fluid by way of the perineural lymphatics. Cushing and Weed[4] report the excretion within two hours of from 19 to 25 per cent. of the phenolsulphonephthalein placed in the lumbar subarachnoid space of cats. Mehrtens and West[5] state that the same substance under similar conditions appears in the urine of normal human subjects in less than ten minutes. In neurosyphilis the period is lengthened as much as seventy minutes. How long the excretion can be demonstrated or what becomes of the major part of the substance was not determined.

It might be questioned whether the minute amounts of arsphenamin that find their way into the cerebrospinal fluid have any spirillicidal value. Knowing what we do about its rapid excretion, it is probable that 0.6 gm. of the dye given intravenously cannot, when dispersed through the tissue juices of a 70 kg. (154-pound) man, represent a higher concentration of arsenous oxid per cubic centimeter than is found in the cerebrospinal fluid; and its efficacy in systemic syphilis has never been questioned. Its failure to attain a spirillicidal concentration may be manifested by such phenomena as neurorecurrences, the Herxheimer and other reactions, corresponding to the biologic law that small quantities of a poison excite, large ones kill, the micro-organism.

The best histologic and physiologic evidence[4] represents the cerebrospinal fluid as "not only the secretion of the choroid plexus, but the fluid waste products of nerve-cell activity as well, poured into the subarachnoid spaces by way of the perivascular channels." Spina[6] has shown that the amounts yielded by the lymph spaces may be considerable. Hence it cannot be said that any amount of arsphenamin placed in the cisterns is therapeutically the equivalent of the minute amounts excreted into the cerebrospinal spaces from the capillary bed. The rate of filtration of the fluid through the arachnoid villi is a function of the pressure difference between the cerebrospinal fluid and the venous blood. To reduce the pressure of the former by withdrawal of a maximal amount of fluid at lumbar puncture, as practiced by Barbat,[1] may indeed have the effect of suspending the outflow for a certain period and thus conserve the arsphenamin concentration of the fluid. The therapeutic advantage to be so gained is problematic, since it is in the perivascular and perineural spaces that occur the chief inflammatory changes characteristic of neurosyphilis, and it is doubtful whether the various cisterns are in direct communication with the former.

It has been urged in favor of intrathecal therapy that the serum introduces the antitoxin, which, after all, constitutes the effective curative agent. Sherrington[7] has shown that following intravenous injections of antitetanic serum into monkeys, the cerebrospinal fluid acquires antitoxic properties. In effecting cures of acute tetanus, the intrathecal administration of the antitoxic serum was shown to be more efficient than the intravenous. Golla[8] denies that the relation holds for man, and cites Irons, who treated sixteen unselected acute cases by the lumbar method with a mortality of from 81 to 83 per cent., and eleven similar cases by the intravenous route, with a mortality of 72 per cent. In a chronic granulomatous disease like syphilis, conditions are much different. Taking the Wassermann reaction as an index, the antitoxic molecule is frequently, in the later stages of neurosyphilis, to be found in the cerebrospinal fluid, while absent in the blood serum. The autochthonous formation of antitoxin, indeed, becomes a necessity, if we are to regard it as the reaction of the host against the constituent contents of the invading organism, e. g., its toxin, and in neurosyphilis the perivascular spaces are the chief seats of the spirochetosis, and hence also the chief seat of antitoxin formation. There is strong indirect evidence that the antitoxin molecule represents nothing more than the molecule of some everyday constituent of the blood (and to a lesser extent of the cerebrospinal fluid), that has acquired an exalted adsorptive capacity. The Wassermann reaction would, then, represent a physical competition between the adsorptive capacities of two molecules for complement, resembling the competition between two acids of different avidity for base. As will be brought out by one of us (Rieger) in a separate paper, this increase in adsorptive capacity of the normal molecule, *x*, sufficient to deviate complement from the hemolytic molecule, *y*, of rabbit's serum, may often be brought about in a simple way both in vitro and in vivo. The injection of arsphenamin, per se, can often accomplish this, so

2. McClendon, J. F.: The Formation and Composition of the Cerebrospinal Fluid, The Journal A. M. A., April 6, 1918, p. 977.
3. Adler, H. M., and Wetmore, A. T.: Boston Med. and Surg. Jour., 1914, **171**, 900.
4. Cushing, Harvey, and Weed, L. H.: Jour. Med. Research, 1914, **31**, 1.
5. Mehrtens, H. G., and West, H. F.: The Absorption of Phenolsulphonephthalein from the Subarachnoid Space in Diseases of the Central Nervous System, Arch. Int. Med., October, 1917, p. 575.
6. Spina, A.: Arch. f. d. ges. Physiol., 1900, **80**, 370.
7. Sherrington, C. S.: Lancet, London, 1917, **2**, 964.
8. Golla, F.: Lancet, London, 1917, **2**, 965.

that after repeated injections, a previously negative blood serum becomes positive, without the mediation of spirochetes.

The intensive treatment of neurosyphilis in all stages, by the intravenous injection of arsphenamin, has, in the hands of one of us (Solomon) thus far given the most satisfactory results. The latter will be presented separately. The cases in Table 2 were taken at random and simply represent those on whose fluids two or more arsenic determinations had been made. It will be noted that the fluids in general show progressively smaller amounts of arsenic for the same time interval, with successive injections. This increased rapidity of elimination corresponds with the increased tolerance for arsphenamin shown by most patients. Adler and Wetmore, working with blood, similarly report that "increased tolerance to salvarsan seems to run parallel to increased rapidity of excretion. This circumstance may form the basis for the belief that the spirilla become "arsenic fast" under intensive treatment. It will also be seen that those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid progress, as judged from the serologic findings.

What, then, is emphasized by the foregoing is the necessity of maintining a maximal concentration of arsphenamin in the blood for longer periods than has heretofore been the practice, so that increasingly greater amounts will pass into the perivascular spaces. The pleocytosis, increase in protein and in the positivity of the Wassermann reaction in the midst of apparently intensive treatment, can only mean that the arsphenamin has failed to reach the seat of the spirochetosis in lethal concentration, and has stimulated rather than checked the process. It is hoped to meet the condition set forth, by successive intravenous injections at one or two hour intervals of small doses, perhaps supported by multiple intramuscular injections.

SUMMARY.

1. Of 123 cerebrospinal fluids collected at intervals ranging from five minutes to twenty-three hours after intravenous injection of from 0.3 to 0.6 gm. of arsphenamin, thirty-eight showed appreciable amounts of arsenic.

2. The largest amount found was 0.6 mg. of arsenous oxid in 1.0 c.c. The average amount was 0.18 mg. per cubic centimeter. The shortest interval at which arsenic was found was thirty minutes; the longest two hours.

3. With successive injections, the fluids in general show progressively smaller amounts of arsenic for the same time interval.

4. In general, those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid improvement.

5. It is suggested that intravenous injections of divided doses at one or two hour intervals would prove more effective in maintaining a high concentration of arsphenamin in the blood for longer periods, and thus possibly allow increasingly greater amounts to pass into the perivascular spaces.

To Detect Simulation of Unilateral Blindness.—A. Trantas of Athens has found instructive the vertical black band which is seen with binocular vision when two opaque screens are moved toward each other until they cover both pupils. On each side of the opaque line there is a luminous line owing to the physiologic diplopia.

Military Medicine and Surgery

THE NATURE OF NERVOUSNESS IN SOLDIERS *

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For eighteen months the term "shell shock" has been employed in medical literature and, colloquially also, in the British Army to cover all cases of nervous instability occurring in the course of war.

Under this heading have been massed cases of amnesia, anergic stupor, sleeplessness, nightmare, mutism, functional blindness, tremors, palsies, and further, anxiety neuroses, occurring not only under fighting strain but also in individuals who, failing in self confidence, suffer doubts and apprehensions while still waiting for transport overseas. Further, the term became commonly used in newspaper journalism, whence it passed into common speech, always associated with a train of thought in the mind of the speaker, at once fearful and mysterious.

The general acceptance of this term and the apparent recognition by both medical officers and the public of a concrete, and above all quite novel, condition induced by experiences of unimaginable horror—the moving accidents of flood and field—had the obvious result of satisfying most patients as to the propriety of his ailment; there was inevitably induced in him an easy rationalization of his illness, an easy self-justification in the very label tied to his tunic in the field ambulance, which, in all but the most redoubtable spirits, facilitated acceptance of his fate and to some extent inhibited effort on his own part toward his own cure.

Let me not be misunderstood: A conscious assumption of symptoms by soldiers in my experience—and in this I am completely supported by all other medical officers—is exceedingly rare; it is not rare for a man to go sick for a few hours to obtain a temporary alleviation of his lot, but very seldom does one meet a man malingering with a view to discharge from the service.

The conditions under which the present war is being fought are the rudest and largest experiment in biologic adaptation to which the human race has been exposed. Before 1914, it seemed to most of us that civilization with its drains, and its banks, its social amenities by which to prevent friction of the emotions, and its policemen and law courts to stop even the suggestion of physical clash, had stifled in us any possibility of living in an environment of danger and destruction, of dirt and foul odors. In the vast majority, the power of the human animal to exist in quite novel and abominable surroundings has been amply vindicated; but in a certain number the adaptation has been less complete, and be it noticed these people have been most often those who found even the normal life of peace time a hard and tempestuous affair.

Much has been written—notably by Mott and certain French observers, together with the strong support of Oppenheim in Berlin—on the theory that the neuroses of war are the result of direct aerial concussion produced by the explosions of heavy shells.

* Read before the American Neurological Association, May 10, 1918.

Brains have been sectioned belonging to soldiers alleged to have been killed by "commotio cerebri" resulting from such concussion, and petechial hemorrhages have been demonstrated in such brains in the medulla, midbrain and basal ganglions. One may submit here the great difficulty of obtaining accurate details as to the circumstances of death on the field. It is not often easy to learn whether or not the man killed was buried and asphyxiated though not outwardly wounded, and one should also bear in mind the power of a heavy shell explosion to deoxygenate the air in its vicinity, before coming over-rapidly to the conclusion that not only the obvious factors of concussion and compression—even to the extent of 10 tons to the square yard—are the sole destroying agents involved in the question.

Almost never are generalized psychoneuroses seen in soldiers suffering also from physical wounds.

It is not conceivable that of two men exposed in equal proximity to a heavy shell burst, he who has no injury can have sustained a greater concussion than he who, for example, has also suffered a transverse lesion of the spinal cord; yet I have never seen any sign of nervous instability—not to mention stupor, amnesia, functional abolition of the special senses or tic—in any individual at the same time dangerously wounded.

In his Chadwick lecture, Mott, speaking of the importance of the personal factor in determining the production of a neurosis, contrasts the case of a commercial traveler (a drummer) of nervous make-up, who after three days in the trenches was returned to the base with tachycardia and tremor, and who six months later had developed an almost complete functional paraplegia, with the calm and well poised attitude of another, an Australian soldier, suffering a spinal paraplegia, the result of a cord lesion inflicted by the explosion of an 8-inch shell 2 feet behind his dugout. Should we accept this comparison thoughtlessly, we should miss what I believe to be one of the most important considerations in all this momentous matter. The comparison is false in that it compares two essentially unlike situations and leads us to the superficial and quite trite conclusion that a flabby, nervous fellow stands strain badly while a robust individual stands strain well.

Such a conclusion is, of course, true as far as it goes; but my experience makes me believe that, had the little commercial traveler been shot in the spine, his emotional apparatus would have remained under control, and had the Australian not been wounded in his narrow escape from destruction, he might very well have come down the line with a mutism, generalized tremor, or some such expression of nervous breakdown.

MORALE

The emotions of fear and pain constitute together our machinery of self preservation; in most of us swathed in the cotton bandages of our civilized lives but little call is made on them. Constant exposure to imminent destruction in war produces, however, a tautness of the nervous system, a strain due to powerful excitement and, I would submit, to the organic stress induced by the mobilization of biologic instincts heretofore dormant. These instincts of self preservation do not always, and perhaps not often, become conscious realizations. I mean that men, though in great danger, quite honestly may not feel afraid; their nervous systems may be said to be frightened, but their awareness knows no fear.

This submersion of such a powerful emotive force below the threshold of consciousness is due partly, perhaps, to the person's knowledge of the debilitating effects on his energies of the entrance of fear into his conscious life, but much more, one feels sure, to the inhibitory influence of his morale. Now what is this thing we call morale? Is it not the expression in each soldier of his herd instinct, of his willingness to sacrifice himself for the benefit of his kind, and for the ideals held in common by his countrymen and himself? It is a loyalty to his mates, to his officers, to his regiment, to his nation, and, in the last instance, to the ideals of life for which his nation stands, and it is measured by his conscious willingness to suffer, his capacity for sacrifice in the common good. It is a quality born of the tribe, a product of gregariousness and so held socially in good repute. It is constantly expressed in thought; it is a real component of the soldier's conscious intellectual life. The shrinking from loss and the fear of death on the other hand are but rarely scrutinized in their realities; they are antisocial in trend and so are cast down, by good citizens, into the limbo of subconsciousness.

Perhaps I seem to you to have been wandering from my subject by these considerations; but for some months past I have been trying to discover something of the dynamic influences in our men, and I feel that a clue to the genesis of the neuroses is to be found in the antagonism on the one hand of the conscious emotions of loyalty and morale with their concomitant urge to self-sacrifice, and, on the other hand, the more or less satisfactorily repressed instincts for the conservation of individual life.

The British soldier is not given overmuch to self analysis and investigation of his emotional processes; but questionings carried out as tactfully as possible have elicited in innumerable instances the information that being wounded, subsequent to or during heavy shell fire, is followed by a period of mental rest. And it would be strange were it otherwise. Such a man experiences a sense of an honorable relaxation of effort; he is, for the moment, quit of his obligation to others, and freed from his fear of death. Further, his fate, for the moment, is decided, and, despite his pain, he feels himself more fortunate than many of his fellows whom many times he has seen horribly destroyed. He waits for the stretcher-bearers to take him, and in most men there is a conscious hope of a time of rest and home coming.

In such experiences, there are satisfied at once the man's biological instinct for self preservation and his social instinct of loyalty to his comrades and to that ideal of conduct which has been his buttress in times of agony and stress.

The converse situation, in which a soldier suffers the stupefaction and profound bewilderment consequent on exposure to heavy shell bursts without being wounded, is one in which the obligation to persevere still remains with him, together with a prospect of indefinite repetitions of like abominations, culminating, as after a time becomes certain, in horrible mutilation or death. Under such circumstances, the conscious morale and idealism of the man—qualities, as has been suggested, of later growth than other instinctive processes—become drowned with the rising tide of his desire for life. The longing for safety, usually overborne by his conscious will, becomes overwhelmingly insistent, and is expressed by the entire organism being given over to the phenomena of fear. The indi-

vidual becomes, in mind and body, an automaton impelled by one instinct and one emotion; the mind, dazed and numbed, ceases to record impressions and is later found to be for that period amnesic. "Dumb and palsied by fright" are only popular expressions of the loss of special senses and the generalized tremors which ensue. The defensive reflexes, the dodging movements of the head, the sheltering movements of the arms and the crouching movements of the body maintained for hours and days, and, under improper influences, for weeks after the lapse of the exciting physical cause, are an indication of the continued emotional tyranny under which he labors.

In different individuals this conquering of the nobler altruistic part of the man by the lower and more selfish instincts takes place in different ways. It may and most often does occur as the result of profound fright, as has been just described, or, after a long period of mental conflict and strain, there may come a situation carrying with it complexes of such emotional strength as to render almost helpless the will power to endure. Such a case was that of an officer of my acquaintance who, having borne the racking experiences of the landing and trench fighting at Gallipoli, one day, jumping to what he took for solid ground, found himself—as he put it with a gesture of infinite disgust—squelching thigh-deep in decomposed Turkish dead. For weeks this experience recurred to his consciousness both by night in dreams and by day in dreaded interruptions to his normal train of thought, rendering him for that period incapable of duty, a prey to the paralyzing influences of both repulsion and fear.

In the beginning of this paper I said that I had not seen generalized psychoneuroses coexist with somatic injury. Such, you may say, is not the opinion of all observers; but one must point out that such observers are speaking of patients seen after transfer to England who on and near the field exhibited no evidences of nervous unrest. In other words, the neurotic symptoms in such cases developed after the elapse of an interval of days or weeks from the date of injury, which proves conclusively the psychogenetic character of these symptoms and also, I fear, the uncomfortable fact that unwise suggestion from medical officers can do much to evolve and perpetuate somatic symptoms of psychic origin.

Further, the subject is confused by inadequate classification. I have used the term "generalized psychoneurosis" to include those patients whose inability "to carry on" is the result of their mental and emotional conflicts having been decided against their higher selves, whose morale has given way before the aggrandizement of their emotions of self-preservation; these are the tremblers, the amnesic, the disoriented, those with night and day dream deliria, the stuporous. The anxiety neuroses are a milder type of the same great category, are most often developed in officers, and result from prolonged strain and mental conflict rather than from single external catastrophe.

Associated with the foregoing symptoms, or more often occurring independently, are various losses or perversions of localized function, usually classed as hysterical stigmata. These may persist after the patient has superficially resumed normal emotional control. On the whole, however, mutism, deafness, functional monoplegia, paraplegia and functional spasms of the limbs are the result of localized suggestion rather than of generalized overwhelming of all the mental and emotional qualities, producing automatism and the temporary replacement of volitional by instinctive life.

By "localized suggestion" I mean some circumstances calculated to produce in a mind already apprehensive and strained a more or less fixed idea of localized injury.

ILLUSTRATIVE CASES

CASE 1.—A motor truck driver, an Australian of fine character and physique, in the autum of 1917 was worn out by constant night work in the front areas during which time his feet were almost always numbed with cold. He contracted so-called trench fever and was sent to the base. When in bed, he found that he had developed an acute dorsiflexion of the right foot and toes: this condition persisted through sleep and constituted a deformity of quite alarming appearance. Consultations were held in the case, and various opinions as to the character of the condition were expressed in the man's hearing. No conclusion was reached, and for some months electricity and massage were empirically given without modifying the position of the foot.

An attitude of complete confidence on the part of the medical officer in his diagnosis and in his ability to cure the condition, followed by strong faradism to the calf muscles and to the sole of the foot, and then by rapid reeducation in walking later abolished the spasm in two sittings. The purely mental nature of the ailment was explained to the patient; he was told how, when one wished to move, for instance, one's arm, it was necessary, first of all, to will to move the arm, how that act of will caused energy to come from certain brain cells, which energy went down certain nerves to the arm, which then was put into motion. He saw quickly enough how an injury in either the battery, i e., the brain, or the wire, i. e., the nerve tracts, could prevent movement taking place: whence, he came himself to the conclusion that in order to initiate the progress, it was also necessary to throw in the switch, i. e., to will to move.

He was shown that by his defect of will power he had become for a time no longer master in his own house. It was made very clear to him, without, of course, crude words, that the medical officer knew he was not malingering, but appreciated and sympathized with his condition of fatigue which antedated the outset of the spasm. On the other hand, reference was made to the prolonged period of rest which had been his; our need of fit and capable men like himself was touched on, and there was brought to his mind the price daily being paid by our comrades for our security. In this way his morale was stimulated and, with gratitude for his recovery, he applied for an immediate return to the line.

CASE 2.—Another case of paralysis due to local suggestion is that of a young man wounded by a shell fragment on the inner side of the left upper arm in May, 1915. The wound was slow in healing, and the arm was held by apparatus in the horizontal position for eight weeks to permit of irrigation and dressing. The wound healed with some adhesions round the ulnar nerve, causing a partial ulnar palsy and minor secondary adhesions in the shoulder joint through immobilization. Since then, till a week ago, he had a complete flaccid paralysis of the entire left upper extremity from the trapezius down to and including the intrinsic muscles of the hand. He had been in a number of hospitals. More than eighteen months ago he was discharged from the army and, with satisfaction to himself, finally pensioned. He was seen by me because he returned of his own accord to a London hospital, to which I was temporarily posted, to ask that the arm should be amputated at the shoulder as it grievously interfered with his activities. No electrical assistance was invoked in this case, owing to the hypersensitiveness of the ulnar nerve through injury; but two conversations of explanation, persuasion and tactful reeducation—each of which, however, lasted for some two hours—restored complete range of movement to the arm and hand, as far as was permitted by the organic disability.

It does not seem advisable to burden a short communication of this kind with many case reports. That

has been done most fully by other observers. Indeed, the perversions and abrogations of function due, as has been said, to localized suggestion do not differ essentially from those seen in all neurologic hospitals of civil life. Naturally, the suggestions producing these conditions are of the most varied character—the two patients just described are cases in point—and identical disabilities may occur through a minor injury from being struck by flying earth or as a result of a more serious injury from the diagnostic or verbal indiscretions of a medical officer.

Almost all injuries of the extremities, in my experience, are accompanied, for a short period at least, by a natural "defense immobilization" of the limb quite apart from any organic nerve injury. This is a natural reaction from pain in tired persons. A flesh wound of the upper arm, for instance, easily produces in such men the impression of inability to move the wrist and hand. And any doubts expressed by a physician as to whether or not, for example, a brachial plexus injury might not possibly account for the condition of the hand, sow the seeds of a fixed idea, which later may assume a very sturdy growth.

PSYCHOLOGIC CHARACTER OF THE PROBLEM

This bring us to the vital factor underlying the successful treatment of all somatic expressions of psychic unrest. In a word, it is accurate technical knowledge. The power to make a careful physical examination, to weigh evidence with precision and thereby to attain correct diagnosis is the only power that will give the medical officer sufficient self-confidence to be able to communicate healing to his patient.

Time and again has one seen a half doubt in diagnosis prevent a coming together of the minds of physician and patient: if the medical officer is not entirely certain of the nature of the condition under review, his ability to cure it will be inhibited by a suspicion of the existence either of an organic nerve lesion, on the one hand, or of a conscious malingering, on the other.

In short, functional motor and sensory palsies, and functional perversions of the special senses, are created by suggestion directed toward the affected faculty or member, and are susceptible of cure by like means and only by like means. To differentiate them easily and rapidly from similarly appearing organic conditions is the first and most important step in their treatment, and one which, having been taken with firmness and accuracy, will confer on the medical officer the self-confidence and authority to exorcise the system of false ideas that has been the immediate cause of the condition.

I say "immediate cause," for in these cases due to localized suggestion there is undoubted evidence of the presence and effects of the same mental conflict, the strain of which produces in other men states of anxiety or other generalized pscychoneurosis still more incapacitating for military duty.

We are indebted to Freud and his school for our realization that neurotic symptoms may be produced by the antagonism of mutually incompatible emotional trends. The tremendous mass of material made available by war demonstrates the general rightness of this principle, but still more definitely proves the peculiar wrongness of the details with which the psychanalysts have applied it, and entirely invalidates their deduction—elaborated as a pontifical dogma—that the sexual instinct in, albeit, various disguises, is the only dynamic force possibly concerned. Further, as has been pointed out by Trotter with regard to the neuroses with which we are familiar in times of peace, the nature of the repressive force has never been properly grasped by them, in its true character of gregariousness and group loyalty, an instinct of which each one of us becomes aware through what he calls his conscience and his sense of duty, the claims of which grow more overwhelmingly insistent under the whip of war than under the quiet influences of gentler times.[1]

Soldiers since the beginning of armies have been clear eyed in this knowledge. They have not, of course, dealt in the turgid phrases of our schools, but they have felt surely the binding qualities of the herd, and have seen in them the only emotive force fit to overcome in their men their fear of death. They too have known that the cement of the herd is the suggestibility of man—and their instrument of suggestion is called discipline.

So in this matter the medical officer has an onerous and difficult task. He acts both for the state and for the soldier and, to deal fairly with both clients, it is vital that he should appreciate the truly psychologic character of the problem with which he has to wrestle. Only by so doing can he free his patient of his symptoms and, what is still more important, protect the armies from the contagion of suggestion so apt to sweep through such closely coordinated communities, each individual of which is exposed to identical causative conditions.

INAPTNESS OF THE TERM "SHELL SHOCK"

The essential feature of these ailments having been grasped, they must be classified and christened. In the beginning of this paper it was pointed out how the term "shell shock," founded on false premises, not only served to suggest an incorrect etiology, but also, by its pitiful and romantic sound, tended to perpetuate symptoms and to excite no determination in the mind of the sufferer to recover his control, or, in the fighting man, still to endure. So far is it from making an appeal to conscience or to discipline that it stifles both, and stultifies effort toward cure.

The name is a mistake: we must be rid of it. Let us have instead a true term which will be neither a compromise nor a technicality, unintelligible to the mind of the soldier.

Hysteria is unsuitable in that its significance to laymen and physicians is not identical; nor does it embrace, for instance, such conditions as the anxiety neuroses. The simple word "nervousness" comprises all the neurotic manifestations seen in war. It furnishes an appeal to the sense of discipline in the armies, and further promotes the growth of a public opinion, both military and civil, which would be of the greatest prophylactic and therapeutic power.

This diagnosis would continue to be divided into nervousness (sick) and nervousness (wounded), as now obtains, according to the external conditions to which the man was exposed at the time of breakdown. This change in military nomenclature would make clear to both soldiers and civilians that such diagnoses need not necessarily be followed by a return to home or to the base, and would clearly indicate the propriety of dealing with such cases diagnostically and thera-

1. It is a pathetic comment on the mode of thought of our times that it should require a cataclysm to make some of us realize the affected futility of such perpetrations as, in painting, "The Nude Descending a Staircase"; in poetry, the cacophony of Futurist verse; in politics, the blinding disasters that follow a vapid internationalism, or in psychology, the notion that because a young man confesses to a weakness for cream cheese he must needs be enamored of a maiden aunt who kept a dairy!

peutically in rest camps, and especially work camps, in front areas and on the lines of communication.

SUMMARY

What has been written here is simply an attempt to set down in general terms the nature of the problem with which we are confronted. In doing so, only the psychologic aspects have been regarded, because these mental symptoms can be examined easily and treated successufully, though empirically, by rest, persuasion, reeducation and the restoration of self-confidence through suggestion and discipline. I have not been unmindful, however, of the physical changes which, accompanying violent emotional disturbances, result in alterations in the physiologic balance of the involuntary nervous system. We cannot yet know whether or not such reflex and secretory activities are the cause or the result of mental and emotional stress.

The collection of clinical and experimental data on such phenomena as, for instance, the functional disorders of cardiac rhythm following emotional tension (for example, for two days after being unpleasantly bombed I found my pulse rate irregular and uniformly over 100, though conscious of no mental strain once the danger was over), or dyspnea accompanied by increased absolute blood acidity, and similar cognate problems may in the future throw light on the association or integral activities of mind and body.

Such data, however, do little, as yet, to reveal the intrinsic nature of mind. To cope adequately with the wastage of health and of armies involved in this question, we must perforce deal with mental phenomena rather than with mind, and apply, with some empiricism, psychologic remedies to psychologic ills.

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TRENCH FEVER

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

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HAMPSTEAD, ENGLAND

Note.—The work on which this paper is based has been carried out at Hampstead for the War Office Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., A.M.S., is chairman. The members are: Lieut.-Col. D. Harvey, C.M.G., R. A. M. C.; Prof. H. Plimmer, F.R.S.; A. W. Bacot, Esq.; Major W. Byam, R. A. M. C.; Lieut.-Col. H. French, R. A. M. C. (Temp.); J. A. Arkwright, Esq.; Sir W. M. Fletcher, K.B.E., F.R.S., and Lieut. A. F. Hird, Gen. List. (Temp.), Secretary.

THE ACUTE DISEASE

The importance of trench fever lies in the fact that large numbers of soldiers, both officers and men, have suffered from it during the present war, and that though it is not fatal, the morbidity resulting from it on the western front exceeds that from any other disease. Those affected are in many instances permanently unable to resume their former duties, and some pass back to civil life incapacitated and a charge on the state. There is no evidence that the incidence of the disease is decreasing naturally, and some, in fact, that its virulence is tending to increase. From the knowledge of its mode of transmission at present available, there is every reason to suppose that, unless adequate measures are taken to prevent it, the disease may arise and spread wherever the body louse is prevalent, provided that men already infested are sent there from endemic areas.

To emphasize further the importance of trench fever we would state at once that, in its later stages, it is the direct cause of a large percentage of the cases of disordered action of the heart, or the irritable heart of soldiers, of neurasthenia, myalgia and rheumatism with which the beds of our hospitals and spas are now filled. Any campaign undertaken to combat the disease must be supported by even more vigorous measures against scabies than those taken at present, for the etiology of trench fever is intimately connected with the incidence of that disease. The sufferer from scabies presents the necessary skin lesions essential to infection with trench fever and scratches himself in a way that will insure inoculation if the trench fever virus is present.

DEFINITION OF TRENCH FEVER

As no pathognomonic sign or symptom of trench fever is at present recognized, we would define the disease as a blood infection communicable from man to man by means of the louse (*Pediculus humanus*) and possibly other parasites. It is characterized in its early febrile stage by recurrent pyrexia, headache, giddiness, which may be due to disturbances of joint or muscle sense, but early in the disease is generally a true vertigo, pain in the back, pain in the limbs which is chiefly in the legs and often of very considerable severity, a slow pulse in comparison to the degree of fever, conjunctival congestion, sweating, polyuria, a moderate leukocytosis at the height of the fever, with evidence of blood infection in involvement of the spleen and, in a proportion of the cases, of the liver also. A period of unstable temperature follows. Eventually a certain percentage of the patients pass into a stage of chronic ill health. These patients suffer from recurrent pains in the limbs, headaches and nervous manifestations, such as mental depression, excessive tendency to sweating, disordered action of the heart (D. A. H.), and abnormal response to stimuli, all of which are accompanied by a mild degree of anemia and some loss of weight. Damp weather produces exacerbations of all pain in sufferers from the late stages of the disease. The infection, in some cases, is very persistent, and acute febrile relapses may occur after months of quiescence.

THE SEASONAL INCIDENCE

We are unable to speak of the seasonal incidence with certainty, but it appears that the number of

infections gradually increases during the cold weather, when delousing is accompanied by increased discomfort and when men huddle together in order to keep warm. The number of cases decreases but slowly throughout the warm months. The incidence must vary directly with the degree of louse infestation in any unit.

CLINICAL CHARACTERISTICS

The following is a summary of the histories obtained in 200 consecutive cases of trench fever in which the patients were sent to Hampstead:

The onset was uncertain in 16 per cent. of these; of the remainder we have classed 32 per cent. as gradual in onset and 52 per cent. as sudden. Some have been quite dramatic in their suddenness; others apparently only felt giddy or shaky during an hour or two before the attack was ushered in by a "splitting headache" and weakness so marked that the victim "could hardly crawl."

A picture of the sudden onset is as follows: "Felt perfectly fit, did a heavy day's work without any distress. Suddenly felt giddy and weak and shaky on the legs; splitting headache, shivers and hot sensations alternately; could not get comfortable in bed, ached more or less all over—worse in loins and legs. Got up two or three times to pass water. Slept badly. A little better in the morning; got up; could hardly stand; pains returned severely."

The typical shin-bone pains may come on at once but, as a rule, appear considerably later.

Prodromal symptoms in the cases of gradual onset were noted in the following order of frequency: pain in the head, pain all over, weakness, pain in the legs, malaise, dyspnea, giddiness, pain in the loins, shivering, pain in the abdomen, diarrhea, constipation, anorexia, nausea, frequent micturition, restlessnes or insomnia.

The prodromal period lasted for two days or longer. Such prodromes are really the early symptoms of definite onset, as in many cases the severity of the symptoms increases gradually during the first few days of the disease. It should be noted that the symptoms in a relapse are often more severe than in the initial attack.

Without doubt trench fever is more often sudden in onset than gradual.

Men from all branches of the service become affected with trench fever, nor does any particular previous illness seem to predispose to the condition.

In our series of 200 cases the symptoms of onset occur in the following order of frequency: pain in the head in 74 per cent.; in the shins, 46 per cent.; in the loins, 31 per cent.; in the knees, 21.5 per cent.; in the ankles, 19 per cent.; in the thighs, 15 per cent.; in the calves, 13 per cent.; shivering and chilliness, 26 per cent.; sweating, 19 per cent.; frequent micturition, 13 per cent.; dizziness, 12 per cent.; nausea and vomiting, 11 per cent.; pain in the shoulders and arms, 8 per cent.; pain in the abdomen, 7.5 per cent., and diarrhea in 5.5 per cent. A similar table including symptoms from the onset to a later period in the disease naturally shows an increase in the frequency of their occurrence; e. g., pains in the head, 92 per cent.; pain in the abdomen, 24 per cent.; pain in the shins, 77 per cent.

Tenderness of the shins, as apart from pain, was remembered by 9 per cent. of the patients as an early symptom, while several referred vaguely to "feeling sore" and as if "they had been kicked" on the day of onset. Thus, in addition to fever, headache may be the only symptom at the onset of the disease. There is reason to think that dizziness is much more common than the figure given would indicate.

The "restlessness" complained of bears some resemblance to the discomfort of "growing pains" of youth, in that position of comfort can be found, and so is unlike the pain of "rheumatism," in which one finds a position of minimum discomfort and is glad to maintain it.

The headache is most commonly felt across the forehead and behind the eyes; but it may be bitemporal or occipital or, less commonly, vertical. Some describe the pain as being right inside the head. Usually one of the earliest symptoms, it is often one of the most severe, persistent and commonly recurrent. It is not associated with tenderness of the scalp. When occipital it is often accompanied by stiffness in the back of the neck.

The character of the pain in the limbs is twofold: (*a*) dull aching or gnawing; more or less continuous, always worse at night, and (*b*) acute pain—shooting or stabbing—which may last many hours, especially at night. The latter pain is nearly always felt in the bone, and most frequently in the tibiae. [Spinal puncture and withdrawal of a small quantity of cerebrospinal fluid has given speedy relief in some of our cases with very acute leg pains. Sometimes the pains recur, but never so severely. The fluid withdrawn has always been clear, though sometimes under slight pressure.]

There is no part of the body which invariably escapes from pain. After a few days, however, the "pain all over" subsides, and localized pain becomes prominent. The loins and lower limbs are most often affected. Pain is usually, but not invariably, symmetrical. The situation of the pain may vary from day to day. Certain observers have suggested that there are two distinct diseases at present termed trench fever and would differentiate them by the presence or absence of shin-bone pain. We are convinced that this is not so, both from clinical observation and from experimental work.

When pain is complained of in the joints, we have not noticed any concomitant swelling; the joints are sometimes painful or stiff to move, but this is due to pain on movement in the neighboring structures.

It will be seen that 7.5 per cent. of the patients had pain in the abdomen within the first twenty-four hours, while 24 per cent. noticed it at some time within the first week or two of their illness. In six cases the pain was associated with early diarrhea. Of the 24 per cent.: three patients complained of pain in the right hypochrondrium; twenty-nine patients complained of pain in the left hypochrondrium; thirteen patients complained of pain in the right iliac region, and thirteen patients complained of pain in the left iliac region. The pain in the right iliac region may be so severe as to give rise to a diagnosis of appendicitis.

The pain complained of in the left hypochondrium points in most instances to involvement of the spleen. In early cases the splenic region is frequently so tender that examination is impossible on account of stiffness of the muscles over the organ. An appreciable precentage of all our patients have had palpable spleens during some period of the disease, though such enlargement has never been of more than two finger breadths below the costal margin. Such definite enlargement is most often the result of a prolonged infection. (The spleen was palpable, early in the disease, in three cases.)

Pain in the right hypochrondrium over the liver points probably to changes in that organ, but how far trench fever is responsible is not clear.

A diagnosis of pleurisy had been made in some of the patients sent to us on account of splenic or liver pain.

A peculiar and very constant feature is the rapidity with which there are alternations of shivering and sweating, such alternations occurring several times in the course of a single day or night. True rigors are rare, but have been observed by us and were very marked in an instance of five day fever.

The frequent micturition which was complained of by 13 per cent. of our patients was not associated with pain but resulted in the passage of an increased amount of urine. The polyuria occurs as the temperature falls, and in two of our cases, in which the amount was estimated, 110 and 86 ounces were passed in twenty-four hours toward the end of the initial attack.

During the acute attack the pulse rate is slow in comparison to the degree of fever. The rate rose with each rise of temperature, and a mild degree of disordered action of the heart developed after the fifth week, followed by bradycardia. Such a case may be considered as severe.

A fairly constant feature of the initial attack is a mild degree of conjunctival congestion sufficient to be designated as "pink eye." The condition is usually transient, though it frequently recurs with subsequent rises of temperature.

At first the tongue is lightly coated with fur, though there is nothing characteristic about its appearance. It soon clears and remains remarkably clean.

Affections of the respiratory tract are usually conspicuous by their absence.

Areas of tenderness are frequently associated with the pains, and may involve the skin, muscles, tendons, bones or joint cartilages. The nerve trunks themselves do not appear to be involved. Such tenderness may occur independently of pain, or pain independently of tenderness, and either or both may persist for long periods after the fever has subsided. The extent of the areas of tenderness usually increases with exacerbations of the disease. Such exacerbations may be entirely afebrile. As with the pain the areas of tenderness are usually bilaterally symmetrical, with the exception of those over the front of the chest, where it is common to

find only the skin over the left lower ribs involved. The area of skin most frequently found to be hyperalgesic runs from knee to ankle along the outer border of the tibiæ.

As curiosities we have observed instances of nystagmus, aphonia during pyrexia, herpes on lips and trunk, dermatographia, flushing of the skin over the tibiae, and tingling of the fingers and toes.

During an acute attack the patient's general condition obviously deteriorates, and he presents an appearance of exhaustion, the result of constant severe pain and repeated sleepless nights. He becomes anemic, though the color index is rarely below 0.8, and he steadily loses weight.

One patient, while with us, lost 36 pounds in weight during five months.

After a period varying from a few days to about a fortnight from the onset of the disease, the acuteness of the patient's pain subsides, he sleeps well, and his appetite returns. There is even then generally some return of pain each night in some part of his limbs—most commonly the shins, calves or ankles. If he is allowed to get up he finds that walking increases the pain.

During the next week or two, whether pyrexia occurs or not, there are recurrences of symptoms—especially leg pain, each exacerbation being a short replica of his original attack or of some portion of it. When accompanied by marked pyrexia, such recurrences nearly always involve recurrences of headache, pink eye, sweating and often of polyuria. The muscle or bone pain may at such times occur in hitherto unattacked parts. It is during such times that splenic involvement has been most often noted.

In some cases such recurrences are few and slight, and the patient soon feels fit and complains of nothing but slight pain or still slighter tenderness in a limited area of the legs from the knees downward.

In others the recurrence, even if quite late in the disease, may be more severe than in the original attack.

PYREXIA

Much confusion seems to exist as to the various temperature curves encountered in trench fever, and their relation to one another. Some observers would accept only periodic fevers with shin pains as evidence of this disease. Neither periodic fever nor shin pain is essential.

Although we have carefully considered the various types of temperature charts, we find no constant correlation between the fever curve and the clinical course. Any grouping of symptoms may be found associated with each of the various types. Our experimental work supports this view.

As we have stated in a previous paper, there are two forms of fever which occur in different stages of the disease. The first form is an irregular remittent and intermittent fever lasting for a period which rarely exceeds four weeks. The second is a definitely intermittent fever, often showing a regular periodicity and sometimes extending over a period of many weeks.

The first form of fever invariably precedes the second, though the initial attack may be unrecognized owing to the mildness of the symptoms in certain cases.

In the initial attack (first form of fever), three types of curves are seen:

1. A fever wave lasting roughly three days. The maximum temperature observed by us was 104.4, followed by recovery. Such cases are usually diagnosed as influenza. There are probably no continuous fevers if sufficiently frequent observations are made. Some remissions are extremely brief.

2. A similar wave followed, most commonly on the sixth, seventh and eighth days, by a febrile relapse, the interval between the initial wave and relapse being afebrile. Irregular fever may follow.

3. A continuance, more or less complete, of the original fever wave into the relapse. Charts in such cases have been termed "saddle-back" and "pseudo-typhoid." They are often followed by a prolonged period of irregular fever.

On the other hand, the second form of fever occurs late in the disease, and its chart is the one which caused trench fever to be recognized as a definite clinical entity. This form of fever occurs at shorter or longer intervals after the original attack. We have seen it begin immediately after the initial or first form of fever, and also after many months of quiescence, reinfection being excluded.

Such fever may be represented by a single "spike," when it is generally recognized as a relapse, or by a series of such "spikes," when it is most frequently and wrongly considered to be a reinfection.

These spikes of fever, often reaching 104 (the maximum temperature observed by us was 105), recur at intervals which are most often variable in duration, but which may be so regular as to give a periodicity of four days or longer.

PATHOLOGY

Little can be said under the heading of pathology. The causative organism of trench fever remains to be found. The blood picture indicates abnormal activity of the bone marrow, and a moderate and rapidly varying leukocytosis precedes and accompanies the fever waves. The increase of white cells is due to an outpouring of immature polymorphonuclears. In the afebrile intervals the mononuclear elements are relatively increased. The last is probably a condition common to many soldiers at present in the field.

With the fall of temperature the amount of urine passed frequently increases, a trace of albumin is often present, and there is a deposit of cellular elements, though evidence of true nephritis is very rare.

DISTRIBUTION OF LOUSE-BORNE DISEASES

Since trench fever is conveyed by lice, the possibility must be considered of its being carried to all parts of the world where conditions favor the spread of louse-borne diseases. For this reason the distribution of the three diseases, typhus exanthematicus, relapsing fever and trench fever, which are known to be conveyed by lice, has been shown in a map compiled from the writings of several authorities.[1]

An attempt has been made to show the relative prevalence of typhus and relapsing fever in different parts of the world in recent years. Strict accuracy, however, is not possible because information is scanty from the less civilized parts, and much doubt prevails about the nature of certain epidemics. No account has been taken of the war epidemics, information concerning these being fragmentary. That there have been many outbreaks of typhus in Germany and Austria, not only in the prisoners' camps, but also among the civil population, is well known. Terrible epidemics have also occurred in Serbia and Roumania, relapsing fever raging at the same time as typhus.

Typhus Fever.—This disease, once common in western Europe, is now very rare there, though it still lingers in an endemic form in parts of Ireland and in Brittany, and possibly in South Portugal. On the other hand, it occurs frequently in Austria, especially in Galicia. In the Balkans before the war it was not a serious menace, but in Turkey it was often encountered at that time. Over the whole of Russia and the mainland of Asia from about 25° N. it is very prevalent, and frequent epidemics are the

1. Clemow: The Geography of Disease, Cambridge University Press, 1903. Low, R. Bruce: The Epidemiology of Typhus Exanthematicus in Recent Years, Report 44 of the Local Government Board, London, 1914-1915. Nuttall: The Part Played by Pediculus Humanus in the Causation of Disease, Parasitology, 1917, **10**, No. 1.

rule. In Japan and south of 25° N. on the mainland it is less frequent, and is apparently absent from the central and southern parts of India, East Indies, and the Malay Peninsula, but reappears again in the Celebes. From the rest of Australasia it is absent. In Africa it is very prevalent north of the Sahara, and frequent epidemics occur; south of this barrier it is unknown. It has occurred as localized outbreaks in Canada and the United States, but has never become endemic there. The introduction of the disease was generally traceable to Irish immigrants, to whom the outbreaks were often confined. In Mexico it flourishes on the high ground both in endemic and epidemic form, while the same is true of the line of the Andes in South America. It has been encountered throughout the greater part of South America, but not recently in Guiana or the West Indies.

Relapsing Fever.—The distribution of this disease in Europe and North Africa corresponds exactly to that of typhus. In Asia it is less prevalent to the east of the Obi River in the north and the Ural River in the south than to the east of those rivers, though this line has no significance so far as the prevalence of typhus is concerned. The disease has not been definitely reported from Japan, East India, the Malay Peninsula and Australasia (with the possible exception in Australasia of a single death in West Australia [Clemow]). It has been reported from the greater part of India.

Louse-borne relapsing fever has been described as occurring spasmodically over the greater part of North America; the form occurring in Central and South America is possibly tick-borne (Nuttall). South of the Sahara in Africa, relapsing fever has the tick *Ornithodorous moubata* as vector.

Trench Fever.—So far as we are aware, this disease has been reported only from the war zones and places approximating thereto. It is known to have occurred in Flanders and in France, at any rate from the Vosges to the sea, on the Italian front, at Saloniki, and to a small extent in Mesopotamia. It has not been reported from Egypt, Syria or East Africa. It has prevailed in Poland, Galicia and the Bukowina, though whether it has followed the eastern front to the sea we do not know. Most probably it has. Wells and Perkins[2] make no mention of it in their detailed account of war diseases in Roumania.

While we are unable, in the present state of our knowledge, to state definitely that lice occur in every inhabited part of the world, it is probable that they do. They are, however, undoubtedly less plentiful in hot than in cold climates. The known distribution of louse-borne diseases, therefore, by no means corresponds to the distribution of lice. These diseases are diseases of cold rather than of hot climates, of mountainous rather than of low-lying countries, and prevail in winter rather than in summer. They would appear to have originated in the Old World and to have been carried to Mexico and Peru by the Spaniards, where they became endemic on the high ground. In the Old World the tropical belt appears to have formed a barrier which they have been unable to cross, with the curious anomaly of Celebes. In view of what has occurred in America and the distribution of lice, the introduction of louse-borne disease into any country should be carefully guarded against.

2. Wells, H. G., and Perkins, R. G.: Observations on Medical Conditions in Roumania, The Journal A. M. A., March 16, 1918, p. 743.

PROGNOSIS

About 90 per cent. of all cases yield quickly to ordinary symptomatic treatment, and the patients return to duty in a few weeks.

We make this statement on the authority of observers in France, supported by the evidence of our experimental infections, but are unable to say what numbers of the 90 per cent. have really recovered or subsequently relapsed.

In the smaller group of 10 per cent. the disease pursues a more obstinate course, and the patients in consequence are evacuated to England. It is the group with which we are now specially concerned and to which our experience of the naturally acquired disease is limited.

The character and course of the initial attack is the same for both the groups mentioned above.

An analysis of 236 cases in which the patients were evacuated to England leads to the conclusion that the most reliable guides to prognosis are the physical unfitness of the man, a definitely palpable spleen and the development in the second or third week of a low, irregular type of fever.

Of forty-three patients, or 18.2 per cent. of the whole group, who were physically unfit when they contracted the disease, none were discharged to duty and the average duration of disability was 5.4 months. Twenty per cent. were invalided from the army as permanently unfit. Six men in this subgroup had acute febrile relapses after periods varying from two to five months of apyrexia as observed by us.

Twelve patients, or 5 per cent. of the whole group, showed a definite palpable spleen. Two of these, or 16.6 per cent. of the twelve, were discharged to duty, and four, or 33.3 per cent., were invalided from the army as permanently unfit. The average duration of disability was 5.8 months. One of this group had a febrile relapse after five months of apyrexia.

Of fourteen patients, or 5.9 per cent. of the group, showing an irregular low type of fever after the second week, none were discharged to duty. All were transferred to convalescent hospitals still suffering from symptoms of trench fever, with the exception of two, who were invalided as permanently unfit. The average duration of disability was 8.9 months, when the patients left us. One had a febrile relapse after four months of apyrexia.

These figures should be compared with the results obtained for the whole group, in which fifteen men, or 6.2 per cent., left us free of symptoms. The average duration of disability for the 236 patients was 4.5 months. Febrile relapses occurred in all types of cases. Eight per cent. of 236 patients showed a definite febrile relapse with a temperature of 102 or more after an afebrile period, varying from two to five months, during which the temperature did not exceed 99.4. This percentage would have been much higher were this arbitrary standard of apyrexia not adhered to.

In addition to the foregoing, four patients at present in the hospital have shown similar definite relapses after periods varying from twenty-one to sixty-three days.

Finally, neither the intensity, the seat or the character of the pain, the height of the initial temperature or its duration, nor the suddenness or otherwise of the onset give any indication of the future course of the

disease. The patient's weight is the best guide to prognosis in a chronic case. As recovery takes place, the weight steadily increases.

TREATMENT

Clinical signs being our only guide as to the value of any treatment as a specific, we have controlled our results with a large number of unselected patients who were treated by palliative measures. By means of this control we are able to say that until now we have found no drug or system of therapy which we can consider a specific.

We have seen nothing to convince us that these patients really benefit by physical drill; but we have been most favorably impressed by the results obtained by rest combined with moderate exercise and thyroid therapy. This is not regarded as a specific treatment but as one which reduces the incidence of disordered action of the heart, provided it is begun early enough.

A selected diet, rich in antiberiberi vitamins, was tried in one group of cases, but these patients did not show any better results than those fed on ordinary hospital diet.

Many trench fever patients remain a long time in the hospital on account of concomitant conditions. Of these the most frequent are flat or weak foot, old injuries of the feet, pelvic and lumbar muscles, trench foot, chronic joint changes, pyorrhea alveolaris and intestinal intoxication.

PROPHYLAXIS

Prophylaxis centers around the destruction of lice. In civilian life, wherever organized and sanitary work exists, this should not be a difficult matter. While trench fever has not yet been recognized away from the war zone, the possibility of its appearing when infected men return to their homes must be borne in mind. Body lice still exist in considerable numbers in the poorer parts of towns and in agricultural districts, while outbreaks of head lice are not uncommon even in well regulated schools. Whenever a case of pyrexia of uncertain origin occurs, the clothing and head of the patient should be carefully examined for traces of lice, and if these are found immediate measures should be taken to disinfect those who have been living in close contact with him, and their dwellings. Any of the methods successfully used in the army are available for this purpose. Cleansing stations are already organized in many large towns, but it is of little use cleansing the child and allowing him to return to an infested home.

Among the armies the problem is at once more difficult and more acute.

Successful disinfection, in addition to reducing the incidence of trench fever, will offer security against typhus and relapsing fever and relief from discomfort, which may be so great as even to cause definite neurasthenia. In consequence, since typhoid fever ceased to be an anxiety to army medical officers, the systematic destruction of lice becomes their most urgent duty. Especially is this so as any measures taken against lice are also effective in checking the spread of scabies. In the present war, the head louse and the crab louse, *Phthirus pubis*, have given little trouble, while the body louse has been and is extremely numerous.

It is not enough to allow a man a hot bath and to cleanse his clothing. Eggs are frequently present on the pubic and axillary hair and give at once a new focus of infestation, while the men at present often returned to untreated beds and billets. Blankets, beds, dugouts, hats and billets should all receive attention. That lice are not seen in these does not necessarily mean they are not present. While Peacock[3] is doubtless right in his statement that lice spread mainly from person to person, the important thing is to remove every possible source of reinfestation. In a series of experiments carried out at Hampstead Military Hospital, in which the movements of lice on febrile men were being observed, from 6 to 20 per cent. of the lice employed disappeared in the course of the various trials, of which each lasted for about twenty-four hours. Careful searching did not discover the wanderers, though they would certainly be still in the room.

Lice have a proclivity for wandering, and are able to exist without feeding for a week at ordinary room temperatures, and longer under cooler conditions. Nuttall[4] records ten days at a temperature of 5 C. (41 F.) as the longest period which lice have been known to survive unfed.

Disinfestation of Troops.—For the details and working of the various devices for disinfestation, reference should be made to the writings of Bacot,[5] Nuttall[4] and Peacock.[3]

The following notes are the merest summary of what has become a very bulky subject:

All men from one set of billets, huts or dugouts should be paraded together at the same time for disinfestation, with their blankets and kits if possible.

The men should be shaved free of pubic and axillary hair and chest hair if thick. Their heads should be very closely cropped, and they should be given a hot bath. After the bath their underclothing should be smeared over with some louse-destroying grease to render them repugnant for a time to fresh infestation and to destroy any nits still adhering to them. Every care should be taken when removing hair not to abrade the skin, as careless shaving has been found to increase the incidence of other diseases conveyed by the excreta of lice. The shaving or very close cropping of the body hair is essential, as otherwise nits, which are often present there and are not killed by bathing, remain to reinfest the man. The most satisfactory grease for application to the underclothing is one composed of crude unwhizzed naphthalene from the coke oven, 4 parts; soft soap, 1 part (Bacot and Copeman). That the naphthalene should be as specified is of great importance, and a sample of each delivery should be tested by an expert entomologist. Its odor is not unpleasant to most persons and it causes little or no irritation to the skin. Men should be discouraged from using proprietary remedies, as many of these are useless, disheartening the men and making them skeptical about the efficacy of any remedy. The men should be carefully inspected a week after disinfestation and be urged to report immediately on any reappearance of lice. The entire clothing and bedding of men should be treated by heat or some louse-destroying solution.

Disinfestation by Heat.—All clothing should be included in the treatment, blankets and kits, when possible. The heat may be wet or dry; the latter is preferable, as clothing may then be worn immediately after treatment. Moist heat should never be used for leather articles.

To kill lice and their eggs with certainty, 55 C. (131 F.) for thirty minutes or 60 C. (140 F.) for fifteen minutes must be attained. Such temperatures will not disinfect the excreta of lice. The necessary temperatures for this purpose have not been yet determined.

The heat throughout the chamber should be as even as possible. The garments should be hung on rails or loosely packed to insure the heat's reaching every part. If pegs are used, garments are apt to get torn.

3. Peacock: Jour. R. A. M. C., July, 1916.
4. Nuttall: Parasitology, 1917, **10**.
5. Bacot, A. W.: Brit. Med. Jour., 1916, **2**, 447.

The heat of the chamber should be indicated by a maximum thermometer placed so that it can be read from the outside. The Grant Peacock hut and the hot chamber adopted by the Canadian army have been found efficient, as also has the Serbian barrel, though the latter is small. The ideal device for regimental use has yet to be invented. It should be as mobile as a field kitchen, capable of dealing with the clothing of twenty men at a time, simple to work, and economical in firing. It should be capable of being easily loaded and unloaded, and attain the requisite temperature quickly. One end of the chamber should open completely, and all material under treatment be on a movable rack, running on wheels or slides. When treatment is complete, this rack is drawn out and a second, already loaded, thrust in. By this means a minimum of heat is lost and a maximum of time saved. According to Peacock, the time usually occupied in loading, heating up and unloading is about equal to the time of actual disinfestation.

TABLE 1.—DISPOSAL ON DISCHARGE FROM HAMPSTEAD MILITARY HOSPITAL OF TWO HUNDRED AND THIRTY-SIX TRENCH FEVER PATIENTS *

	Number	Per Cent.
To duty	14	5.9
To lower category	12	5.0
To command depot	22	9.3
To convalescent hospital	171	72.4
To civil life as permanently unfit	17	7.2

*Of these, fifteen, or 6.2 per cent., were free of all symptoms of trench fever on discharge. The average duration of disability on day of discharge was 5.4 months.

The ironing of clothing, especially along the seams, with heavy hot irons has been found useful. It is a palliative and not a thorough treatment. In the German army the clothing is pressed against hot iron plates, in preference to hand ironing.

Disinfestation by Solutions.—Bacot and Lloyd have found that all lice and eggs on clothing are destroyed by soaking in a 2 per cent. solution of either (*a*) liquor saponatus cresoli fortis, or (*b*) compound solution of cresol (crude phenol [carbolic acid] and soft soap in equal parts) at any temperature above 32 F. for twenty minutes. One per cent. compound solution of cresol at from 60 to 63 F. was found to be equally effective in twenty minutes, but liquor cresolis less so. The 2 per cent. solutions allow a margin for the weakening of the solutions during use. If fuel is scarce, such soaking may be found preferable to heat.

Fumigation.—While the men are undergoing treatment, their billets, dugouts and huts should be fumigated, together with articles of bedding or clothing not treated by heat or solution.

The best gases to use are sulphur dioxid or hydrocyanic acid gas. The latter is dangerous except in buildings which can be readily ventilated, but it is the more certain of the two. For its production Howard recommends potassium cyanid (from 98 to 99 per cent.), 1 ounce; sulphuric acid, 1½ ounces; water, 3 ounces, for every hundred cubic feet of space.

The percentage of the potassium cyanid should be stated when ordering, as it is sold in three strengths.

The water and sulphuric acid should be mixed in a large vessel, and the requisite amount of cyanid, wrapped up in paper, dropped in. As the gas is released with violent effervescence at once, the operator should leave the room without delay.

Formaldehyd is useless, and it must not be thought that any gas which is fatal to man is necessarily so to the louse.

Finally we particularly wish to advocate the provision of disinfestation equipment for every unit as part of the appanage of every regimental medical officer. This disinfestation could then be applied by all sanitary squads, who would need but little instruction to make them efficient. The only things necessary would be some simple form of mobile oven as suggested already and a plentiful supply of the naphthalene paste. An oven which would take the clothing of twenty men would enable a company to be cleansed in about ten hours. Little or no disorganization would thus be caused, and disinfestation could be carried out as frequently as was found necessary.

In all disinfestation the watchword must be thoroughness. The more thorough the treatment, the less frequent the repetition.

Now that trench fever is known to be a louse-borne disease, it is certain that active measures will be taken to combat it, but there are many practical difficulties which make it more than unlikely that the army in the field will ever be freed from lice under present circumstances. During a period of stress such as our armies are now passing through, disinfestation, no matter how well organized, is bound to be imperfect, and unless some simpler means of repelling or destroying can be devised, trench fever will continue to claim its victims. Nothing short of specially treated clothing capable of preventing lousiness would meet the case. From what we have seen of experimental trench fever infections, it is probable that most of the mild and indefinite attacks of pyrexia of uncertain origin must be attributed to the same source as recognized cases of this disease. The total then becomes appalling.

While still looking to the destruction of lice as our best hope for reducing this wastage, our efforts at home should now be turned to the production of a treatment which will render the blood of a trench fever patient incapable of infecting lice.

Of the men considered to be recovered and returned to the fighting line, many will undoubtedly have further febrile relapses. During such relapses they will be capable of infecting lice. Our present methods of treatment do nothing to prevent this and must therefore be improved on. This is necessary not only in the interests of those in the field but also in order to prevent men infected from becoming the unhappy invalids whose condition, at present, time alone can cure. To this end the organism of trench fever should be our chief quest, as knowledge of its nature is essential to sound work on the production of a specific therapy.

TABLE 2.—INCIDENCE OF DISORDERED ACTION OF THE HEART IN FOUR HUNDRED AND TWO CASES OF TRENCH FEVER *

	Number	Per cent.
Due to all causes	155	38.5
Due to causes other than trench fever	44	10.9
Due to trench fever with onset of disordered action of of heart after admission to Hampstead	42	10.4
Due to trench fever with onset of disordered action of heart after admission to Hampstead	42	10.4

*Average day of disease on which disordered action of heart was first recorded in cases developing disordered action of heart in Hampstead Hospital, 27.3. Extremes of onset of disordered action of heart from the fifteenth to the sixty-second day.

(*To be continued*)

An Efficient and Safe Insecticide.—An emulsion of petroleum and soft soap has been used successfully in India for ridding houses of plague infested fleas. A better composition, according to the *Medical Press and Circular*, is that devised by Cousins in which soft soap, petroleum and naphthalene are the ingredients. This combination, it is said, seems to enhance the action of each in a remarkable way when used as an insecticide. It is easy to prepare, keeps indefinitely, and is a soapy substance easily dissolved in cold water. In the proportion of 1 ounce to the quart of water it forms a wash in which fleas and pediculi are said to perish almost instantly. It is suggested that this would be an easy and practical way of dipping and washing clothes infested with *Pediculi vestimenti* in the army and elsewhere.

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

A MEETING OF THE SECTION ON MISCELLANEOUS TOPICS, HELD IN THE STUDEBAKER THEATER, CHICAGO, THURSDAY, JUNE 13*

The meeting was called to order by Major John M. Dodson, Medical Aide to the Governor of Illinois, who acted as secretary of the meeting.

Introduction by Major John M. Dodson

MAJOR JOHN M. DODSON said: In many respects the topic for discussion this afternoon is the most important subject before the medical profession of America today. It concerns a larger number of physicians than any other, because between 23,000 and 25,000 physicians in this country are today engaged in the important task of examining registrants. On the physical quality of the men who are inducted into service depends the efficiency and strength of the forces that we are sending abroad to help our allies. It is most important that these examinations leave no fit man who ought to serve behind, and that they induct no unfit man into the service. One of the main purposes of the discussion this afternoon is to bring together the various agencies concerned in these examinations, to the end that there may be the most complete coordination and cooperation.

The meeting will be presided over by Major Hubert Work, Medical Aide to the Provost Marshal-General.

Address of the Chairman, Major Hubert Work, Medical Aide to Provost Marshal-General Crowder

MAJOR HUBERT WORK said: We hear a great deal in these troubled times. Everything we do hear is tinged by the sentiment of patriotism. We see on the buildings and on the fences as we travel over the country that food will win the war; in another place that fuel will win the war. But I am here from the Provost Marshal-General's Office to say that in my opinion the men connected with the Selective Service system will win the war—you men connected with the Local Boards, with the Medical Advisory Boards and the District Boards. The character or efficiency of the registrants who are inducted into the service lies with you. It is not possible for this or any other country, or any other countries joined together, to win the war against the Hun except through its man power. You who select these men must determine whether or not we shall win the war.

My position in the Provost Marshal-General's Office is rather an anomalous one. I think I am the "trouble man." Medical members of Local Boards and Medical Advisory Boards send their complaints and grievances to the Adjutant-General of the state. He, in turn, sends them to the Provost Marshal-General's Office, and the chief clerk of that office very kindly lays them on my desk.

This committee has selected speakers to address you, one from a Local Board, another from a District Board, an examining surgeon from a camp, and the man also who has joined the Provost Marshal-General's Office with the Surgeon-General's Office in a medical way.

I take pleasure in introducing as the first speaker Dr. James B. Herrick of Chicago, representing the District Board of Appeal.

Point of View of the District Boards of Appeal, Dr. James B. Herrick, District Board, Chicago

DR. JAMES B. HERRICK said: The District Board has original jurisdiction in claims for exemption or deferred classification on occupational grounds. In nearly all other cases that come before it the board acts as a court of appeal; the registrant appeals from the decision of the Local Board that he is qualified for Army service, or the government appeals from the decision that the man is unfit to serve, or some knotty case is sent to the District Board for its decisive ruling.

Among the appeals there is always a large number in which the question of physical qualification is concerned. For this reason one member of the District Board is usually a physician. Because of the technical medical character of the appeal and the papers accompanying it, the board commonly delegates the investigation of the merits of such a case to the physician member and generally decides according to his recommendation. This throws a considerable load of responsibility on the medical man of the board.

Now, according to the regulations governing the Selective Service, the District Board is explicitly forbidden to reexamine a registrant. "In considering a case appealed on the ground of physical qualification, the District Board shall neither conduct any new physical examination, nor shall it receive or consider any evidence which was not considered by the Local Board" (S. S. R., Sec. 126, p. 65). The physician of the District Board must reach his conclusion solely on the evidence as shown in the record of the examination by the Local Board and the Medical Advisory Board.

NECESSITY OF GOOD RECORDS

Has it ever occurred to the members of these boards what a difficult task they sometimes set the District Board physician because of the meagerness of their record? A Local Board physician says tersely "tbc right apex." The Medical Advisory Board writes "lung neg." How can the District Board physician decide? Where is the evidence? He can merely set one man's opinion—not evidence—against another's and, if he happens to know the two examiners, attach the greater weight to the opinion of the one he regards as the more reliable, and decide accordingly; or he can do, as he should, send back the papers for a reexamination with a full record of findings. Often the District Board physician longs for the days of the first draft, when it was his privilege and duty, personally or through his selected aides, to examine appealing registrants. He often wishes he could listen for a few seconds to the doubtful apex, place his hand over the questionable heart, see for himself the varicose veins called trifling by one, extensive by another, dreadfully severe by the appellant. He would in this way have real evidence on which to base his opinion and his recommendation to his board. Numerous errors due to hasty examination come before the District Board physician, many unjust decisions are due to failure to read or comply with the Selective Service Regulations concerning physical qualifications, but the most exasperating cases are those in which Local and Medical Advisory Boards make these unsatisfactory records of opinions only, without evidence. Particularly when the opinions of these two boards differ should the reasons for the disagreement be clearly set forth. Not only would this lighten the work of the District Board, but what is of more importance, would result in more even justice and often save unnecessary trouble and expense to the drafted man and the government.

HISTORY OF REGISTRANT

It has semed to me that there was at times a tendency to overlook or underestimate the value of the health history of the registrant. In private practice the history—anamnesis—counts for much. In many illnesses it is of far more value than the physical or laboratory findings. Naturally the history of previous or present illness, as related by a drafted man anxious to escape service, should be viewed very differently from that of the man eager to volunteer. The statements, even though sworn to, of interested relatives and obliging family physicians or paid consultants should be accepted with caution and some suspicion. But epilepsy, previous spells of insanity or other nervous troubles can usually be learned about only from the history. An apparently innocent heart murmur may acquire new significance in the light of a preceding rheumatism; a clear history of ulcer of the stomach, loose cartilage of the knee joint, or of hematuria, should justly have weight in the reaching of a decision as to the physical qualifications of a prospective soldier. Local and Medical Advisory Boards should not be too ready to turn a deaf ear to the history.

CORRELATION OF EXAMINATIONS

There is an injustice that has sometimes been done patriotic young men who have volunteered, sometimes more than once, for service—perhaps long before the first registration of June 5, 1917—but have been rejected on account of physical defects but who are now adjudged physically fit by the physicians examining for the draft boards. Such men, after being turned down by the government, may naturally have regarded

* Report of special meetings held as a part of the scientific assembly at the Sixty-Ninth Annual Session of the American Medical Association.

themselves as physically unfit, may have assumed business responsibilities they would not otherwise have assumed, may have married after June 5—the dreadful late marriage—and now are ordered by the government to serve. Some more uniform standard or more uniform practice should obtain so that a man once definitely refused admittance to the Regular or National Army for physical defects may not, except in time of great emergency, be liable to be called to forced service. I know of men who have served in the Regular Army and have been rejected after trial as unfit, but who were adjudged fit by Local Boards, though the certificates of discharge from the Army were presented as well as statements of rejection by recruiting officers of Army, Navy, or Medical Reserve Corps. I have seen letters from Army officers to some of these young men who were being subjected to the annoyance of these examinations, and their indignant recognition of the injustice of it all was clearly set forth by such words as "insult," "outrage," "ought not to be permitted," etc. The new rules, as I understand it, will be uniform for all branches of the armies of the United States. This will help much to do away with this difficulty.

DANGERS OF SUPERSPECIALISM

I am a little perturbed also at what has seemed to me to be a danger all along the line from what might be called superspecialism, the overuse of specialism in our Army hospitals, cantonments and Medical Advisory Boards. The necessity for specialists—oculists, aurists, heart specialists, neurologists, brain surgeons, bone surgeons and others—is plain; it needs no defense. But the tendency of many specialists to overestimate the defect found in their particular lines or to ignore conditions in other organs than those with which they are well acquainted is well known. There should always be some big, broad-minded physician or surgeon of learning, good judgment and experience to sum up all the findings, and, both on the record and on his own inspection of the soldier or registrant, reach the final conclusion. The soldier has to be judged as a whole, and not in small anatomic or even physiologic fragments. The wise microscopist looks at his specimen of tissue, not alone with the oil immersion lens, but with the low power as well. Only in this way does he get the large, full image with the proper relation of parts. A sick man or one thought to be ill should be viewed in the same way. I was much impressed with what one of our brightest and keenest Medical Reserve Corps men told me after he had spent many weeks in examining large numbers of recruits. His first inclination, he said, was to examine according to the rule of the textbook, the laboratory, the instrument of precision, and this in many cases was indispensable. But he soon learned to respect most highly the shrewd observations of an old, experienced, Regular Army colonel who, sitting in a chair, seemingly idly smoking, was yet watching everything, and whose diagnoses of acceptability or unfitness seldom went wrong. He, without touching the man, sized him up as he stood stripped before him—from his build, color, gait, breathing, method of answering questions, while the younger doctors were going through the detailed examination. Is there not a danger that this element may be sacrificed to the necessary but narrowing specialism, unless particular care can be taken to guard against it?

VALUE OF EXAMINATIONS

There is still one fact that sometimes cuts a little deep, gets beneath the skin of the Local, Medical Advisory or occasionally the District Board physician and it is this: Men are sometimes returned from camp or cantonment as physically unfit because the Army physician has examined them and so declared them to be. Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man. But the rank of officer, the uniform, has changed all this. These cases may be exceptional, but the point I wish to make is to speak in defense of the physicians on the Local and Advisory Boards who, though not in uniform, are not necessarily to be regarded as inferior in ability or good judgment to the physician in khaki.

The District Board has occasionally been criticized on the ground that it is a stickler for mere form and technicality. This criticism seems to me unjust. At least, I know that in the District Board with which I have been connected, and in those with whose workings I have been personally acquainted, such has not been the intent of the members. When, late in August of last year, the papers began to filter through from the Local Boards, we were in despair because so few were in proper form and so many important documents were often lacking. But we believed we were in office to try to give to each man whose case was before us, and to the government that had asked us to serve, a square deal. In order to secure justice, technical points and trifling irregularities were inconsequential. Physical examination blanks were often lacking, affidavits were poorly executed, papers might be missing; but no request by a government agent for most careful scrutiny of a case, no statement by a registrant, however brief or poorly worded it might be, no long-winded affidavit drawn up by the prominent attorney for his wealthy client, no plea from the poor widow who claimed her son was her only support, was ruled out as evidence if it had the ring of sincerity about it. We viewed nothing as a "mere scrap of paper." Those scraps of paper too often meant whether it was this boy or the other boy, yours or mine, who was to go, perhaps to his death. Even now, with such marked improvement in the form in which appeals come before the District Boards, the essential aim is to secure justice, and not to stand too much on the smaller technical points. And this is clearly the intent of the government, as orders from the Provost Marshal-General's Office have more than once indicated.

When I was asked to speak today it was requested that I make suggestions and criticisms. And such I have freely made with the hope that they may be helpful. No other motive is conceivable in such a time as this.

It is easy to criticize the Selective Service Law and its operation. But when one considers the stupendous character of the undertaking, the orderly way in which a splendid army of nearly 1,600,000 has been raised, the essential justice with which this end has been accomplished, all criticism sinks into insignificance. But all had to learn, from the highest in rank to the humblest clerk in the Local Board; mistakes were made—the greatest one, in my judgment, being the injection of the element of haste into the work from the first day. But by experience, by correction, by a process of evolution, the Selective Service Law now operates smoothly, rapidly, effectively. Well may General Crowder be proud of the accomplishments of his large body of civilian soldiers; and the various boards of this country are surely proud to be commanded by such inspiring and efficient commanders as the Provost Marshal-General and his staff. But when the complete history of the operation of the Selective Service shall be written, I believe our hats will be lifted to those pioneer men of the Local Boards who, nearly one year ago, took oath agreeing to perform faithfully the duties of an office newly created, duties of unknown character, who, with new tasks piled on them day after day, often with insufficient directions or supplies, sometimes with the criticism of a curious and not always scrupulous press, with the frequent command: "Hurry up! Hurry up!" made the attempt to examine and classify double the number planned for in the shortest possible time. There may have been some incompetent men in the Local Boards, perhaps some lukewarm or disloyal, some shirks; but the great mass were as capable, loyal, faithful and self-sacrificing of time, money, health and comfort as those who went to the front. And they made good. They delivered the men. All honor to them!

Introduction of Colonel Billings

MAJOR HUBERT WORK said: Soon after the first of the year the Provost Marshal-General asked the Surgeon-General to assign a Medical Reserve officer to his office to take up the medical questions constantly coming before him. The Surgeon-General consented, and recommended Major Billings of Chicago. Major Billings was assigned to this work, and of course, with customary thoroughness, he took up the Selective Service Law in one hand, and Form 64 in the other, and attempted to harmonize them. He assumed at first that it could be done, and that they would both lie quietly together in Group A. He soon realized, however, that quite a little of Form 64 belonged in Group B. After a little further study, he thought perhaps it all belonged in Group C, "Qualified for special and limited service." A little further study, and, his patience exhausted, he said: "The whole thing belongs in Group D. I will write a new book."

The Surgeon-General appointed a committee to revise Form 64, and Major Billings was one of the committee. He did the greater part of that work, and the standards of physical examination are being given out today. Colonel Billings formed the connecting link between the Provost Marshal-General's Office and the Surgeon-General's Office, and he has laid a foundation which, I assure you, is going to be difficult for his successor to cover.

Address of Colonel Frank Billings, Surgeon-General's Office

COLONEL BILLINGS said: It is true that when I was assigned to duty in the office of the Provost Marshal-General, I found conditions as to medicine rather below par. They received me kindly and gave me every opportunity to advise the boards in working out their problems. Among the men there who really had the crux of the work to do were two. Colonel Johnson, now General Johnson, was Deputy Provost-Marshal; and I think he knew more about medicine, after the work he did in helping to compile the Selective Service Regulations, than many of us; and his right hand in the doing of that work was Lieut.-Col. J. S. Easby-Smith, whom we are fortunate in having here in Chicago to talk for the Provost Marshal.

THE STANDARDS OF PHYSICAL EXAMINATION

The difficulty that the Provost Marshal labored under was the character of the standards for physical examination. "Changes 3," issued, January 28, to Local Boards, was the fundamental basis for physical examination. That was written for Local Boards. Form 64, issued about March 21, was built on "Changes 3." The men who formulated "Changes 3" and "Form 64" composed a committee of fifteen. Three were the regular medical officers of the Army, and the remainder the Reserve Corps men, representing general medicine, general surgery, and all of the specialties. They, with the Surgeon-General, believed that many men who had defects could be made physically fit for general military service if they were inducted and opportunity given for remedy in camp. But as it happened there were so many men inducted who had what was called small operable hernias and other defects remediable in a short period of time that the facilities in the camps were not great enough to take care of them.

After a few weeks, in an interview, General Crowder said: "I have great sympathy with the great medical profession in its desire to remedy defects and to attempt to improve mankind physically, but, sir, we are not here to remedy defects. We are here to get an armed force trained quickly, and to get it abroad to whip the Germans."

The next thing that troubled us in the office was the fact that "Changes 3," promulgated by the Adjutant-General as the standard of physical examination for all branches of the service, was, unfortunately, not so promulgated. Then when Form 64 was issued, and it was taken with the approval of the Surgeon-General to the Adjutant-General for promulgation to all branches of the service, it was found that "Changes 3" had not gone to all branches. Then it took time to get that off; unfortunately, it was sent by mail, March 28, instead of by telegram. We had the paradox of the Medical Advisory Boards stating certain standards for physical conditions qualifying for general military service, and boards in camps and in different posts using a different standard, which led to confusion. That led to a revision in our camps on the standards that had been in use before, and the acceptance by Medical Advisory Boards of defects that were not disqualifying under the existing standards. Finally, the Surgeon-General was requested to formulate a new standard of physical examination. On that board he appointed practically all Regular Army officers, at my request, because we civilian physicians, qualified as we may be in civil practice, know but little about military medicine.

DISQUALIFIED AND DEFERRED CLASSES

Bearing in mind the objection made by the Provost Marshal, this new standard differs from the old in that no man is accepted for general military service who cannot be immediately inducted into service. It is true that certain small defects are recognized as not disqualifying for immediate induction. It is understood that unless we do recognize certain defects, like the venereal diseases, they might be acquired by many men as a cause of rejection. It is well known that if intensively and properly treated, these defects can soon be overcome. Other slight defects remediable by small operations that would probably not keep a man from active training more than a few days or a week at the most were accepted as defects not disqualifying for general military service.

Then it was recognized that defects might be recognized as not disqualifying for general military service when those defects are cured. They should be placed in a group of defects which, when remedied, would permit the registrant to be inducted; therefore they should be deferred. So Group B is retained, and in that is placed, for instance, every form of hernia that is remediable. In that group also was placed as remediable—perhaps on first thought one would say the habit or defect is such that the man never could be made whole—drug addiction. However, some man might acquire the habit of drug addiction to escape the draft, so these addicts may be placed in the deferred remediable group and left there for such time as the state may consider requisite It was also recognized that we could safely do that because it is not expected that those men will be called or inducted into the service until the Surgeon-General shall have organized the physicians to remedy them, and they will not have to remain in camp a long time.

POWER TO REMEDY DEFECTS

Many members of Local and Advisory Boards have written, since Form 64 was promulgated, to know if these men with defects which place them in Group B could be remedied before induction, not under federal authority. No one can compel a man, in civil life, to undergo an operation. As you know, probably, the Judge Advocate-General has rendered a decision that when a man is inducted into the service he may be remedied; and if he refuses to obey the order he is subject to court martial. In some camps court martial has already sentenced men to various terms of imprisonment in federal prisons. However, we cannot compel men before induction, but we may advise them. So Local and Advisory Boards may induce the individual with a defect which would place him in Group B to go to a civilian hospital and be remedied, but not at government expense.

SPECIAL AND LIMITED MILITARY SERVICE

The difficulty has also come, to some degree, with Local and Advisory Boards with reference to the recognition of that group known as Group C for special and limited service. That group has grown enormously. I think that according to the last I heard from the Provost Marshal-General's Office it is now more than 225,000 men. Perhaps many of them had some defects which should place them in Group B, these Local and District Boards not understanding that they had defects that could be remedied. The principle is that the man who has defects which cannot be remedied and which disqualify him for general military service, and yet of such a character that they do not prevent him from following a useful vocation in civil life which he therefore could follow in military life, may be accepted for special and limited service. That the nomenclature is not identical is unfortunate. In the Provost Marshal-General's Office this designation is "special and limited service." In some camps it as known as "partial duty status"; and in the Surgeon-General's Office and in the Division of Sanitation where that class of registrants falls in the camp, it is known as "domestic service," "domestic" meaning not fit for overseas service.

THE NEW REGULATIONS

This new Form 75 of Standards of Physical Examination governs entrances to all departments of the Army. In the Surgeon-General's Office, we who have had to do with this feel that it is a standard that may be accepted by all of you. There are no ambiguous terms in it. It is not intended to be considered entirely, perhaps, as an authority on which you will act. It is intended to be a guide to your work. Nothing can take away from you your judgment and discretion about the medical or the physical fitness of a registrant to serve. If we rob you of that, you are bound to weaken the service. On page 3, Section 8, you will find a section that contains the kernel or the law of truth. Let me read it:

> Local Boards and Medical Advisory Boards should be especially careful in the selection of registrants who suffer from defects of vision, defects of hearing, and with chronic discharge from the ear or ears; toxic conditions associated with abnormal conditions of the thyroid gland; valvular disease of the heart; tuberculosis; epilepsy, mental disease or deficiency, and irremediable defects of the feet. In other words, to make a good soldier the registrant must be able to see well, have comparatively good hearing, his heart must be able to stand the stress of physical exertion, he must be intelligent enough to understand and execute military maneuvers, obey commands, and protect himself, and must be able to transport himself by walking as the exigencies of military life may demand.

FAULTS OF FORM 64

The unfortunate statements of Form 64 that were paradoxical in a sense have been removed. You are not told in these standards not to reject a foot case, but an attempt has been made to analyze conditions of the feet. You are not told to reject no abdominal case, because an attempt has been made to make clear conditions requiring rejection. You will not be troubled in this manual with a statement of long explanatory laboratory details about an examination of the stomach, because it is believed that when you go to make use of the facilities of the laboratory in gastro-intestinal diseases you do not need to have it placed in this book for your guide.

Some criticism has been made of Form 64, of the description of roentgenography of the chest. That was prepared by a physician in the Surgeon-General's Office. It is believed by the Surgeon-General's Office that this is only a statement, but it is not necessarily a part of the form, because the statements about examination of the lungs are sufficient without it. I do not say this in criticism, but my feeling was that these members of Local and Advisory Boards who exhausted all the facilities of physical examination of the chest would not need the roentgen-ray plate, and if any description of changes shown by the roentgen ray were long and perhaps confusing, it would not be used.

Surgeon-General Gorgas has had an enormous problem before him for over a year.

Finally, as Dr. Herrick said, I say the medical profession may feel proud of what it has done. When you think that in our generation few, if any, of the men in the medical profession of our country have had any experience in military life, and have had none in examination of registrants or in the examination of records, and when you remember that after the first draft in the selection of over half a million men there were rejected from the camps only between 7 and 8 per cent. of all the men selected, it is wonderful. I am quite sure that with the adoption of this new standard, with its use by the Draft Boards, and its use by every branch of the Army, so that all will be working under the same standard, the acceptances of the registrants will be very much greater and the rejections will be very much less.

I want to compliment, before I cease, Dr. Work, or Major Work. He has been of the greatest assistance to the Provost Marshal-General's Office. He has taken off his coat to hard work, and with a medical officer in the Provost Marshal-General's Office we may feel sure that with the advice which is accepted by the Provost Marshal and his personnel, things will continue to go better.

I want to pay, finally, this other compliment. I have worked in a good many places in my life. I think I have worked hard in some places. I was two months in the Provost Marshal-General's Office continuously, and then they were kind enough to say they would not let me go at once and asked me to continue with this work for over a month longer. I never worked harder in my life than I did there; I never worked more hours, because it required Sundays and nights and every other odd time to do the work and try to get it out of the way. But I never worked with a better set of men in my life. There they seem almost like home folks, like physicians.

Introduction of Mr. Graham Taylor

Major Hubert Work said: Mr. Graham Taylor is a resident of Chicago, a well-known and a prominent man, who has spent practically all his life for other people. When war was declared he changed his program a little, and has been giving all of his days and a good number of his nights to the government.

Address of Mr. Graham Taylor, Representing Local Boards

Mr. Graham Taylor said: To me the draft work is somewhat like a cross-section view of American society. For nearly twenty-five years I have lived in a great cosmopolitan ward of this city on the west side, and I though I knew my neighbors; but when the disclosures of this draft came, there was a depth of human experience and insight into individual and collective life, into personal habits and public policies such as I had never had opportunity to get before. It was a great experiment of a very democratic sort for the government to select some neighbors to pass on the qualifications of other neighbors for military service; but in this respect as in about every other, the greatest democratic experiment that has ever been made in this country or any other has proved to be an unqualified success.

CONDITIONS IN WARD WITH MANY IMMIGRANTS

First of all, I wish to give you a cross-section view of the physical conditions of people in a ward of this city numbering nearly 70,000 people, of perhaps twenty different nationalities. At one time we estimated that there were not more than 2 per cent. of the registered voters in the ward who were of native birth or born of native parents. We estimated that 98 per cent. were born abroad or of parents who were born abroad. On our registration list we at first registered 6,020 men, and since then we have registered 270 men who have become of age since June 5, 1917. I am going to take the facts I am to give you from the first 4,080 who were called.

Now, on those first calls we left out the aliens from examination, and therefore we had a small proportion of the entire 6,000 that were eligible for military service. Of the 1,889 first examined there were disqualified physicially 357. I think Dr. Billings said in the country at large there were about 29.11 per cent. of the total number of registrants who were disqualified; but our disqualifications numbered only about 18 per cent. We physically qualified 1,532 men.

NEED OF DENTAL CARE

In the order of the causes of disqualification, eyesight, hernia and bad teeth were high up in the list; and I want to lay emphasis on the need of dental care. It would pay this country to put in every city such a dental clinic as is in Rochester, N. Y., where not a child under 14 years of age need have his teeth neglected because his parents are unable to pay for dental care. Every child in Rochester who cannot pay for it may have that care free through the public-spirited generosity of one of its prominent citizens. It would pay to give free dentistry to all children of school age at public expense.

Hernia was away up the list, and showed, in part at least, the overstrain of work.

PREMATURE AGE

There was a most extraordinary number of women who were declared to be scarcely ever well, or frequently ill; and when we came to examine into the case we found in the main that the claims were true. When the men with aged and infirm parents began to claim exemption first and deferred classification afterward, it made a man past middle life a little bit sensitive to have them answer the questions as to how old these aged and infirm parents were, by saying that they were from 45 to 57 or 60 years of age; one began to be a little indignant and to demand to see these specimens of premature old age; and I declare when those people came in I would have judged many of them to have been from ten to fifteen years older than they were claimed to be. When I asked how in the world some of them came to look so old so early—well, they said that they had a pretty hard time the first years after they emigrated to America, and the exposures and the pace of American industry had caused it; and I made up my mind that this struggle of theirs had much to do with their premature old age. Until comparatively recently the industrial old age at which large corporations will employ men has been steadily going back even below the margin of a man's best years—35 and even 30 years of age. Of course, the war and the shortage of labor may make some difference now.

Social conditions were disclosed in the claims for exemption or deferred classification; a good many of these were made on the ground of the dependency of widowed mothers and aged and infirm parents and young children, and these conditions were illuminating. It led us back to the great economic problems of casual labor, of intermittent industries, of the industrial depressions, and then increased paces of production, showing how large a basis economic conditions and industrial relationships form of the individual life, physical, intellectual, moral and religious. Somebody has said that at the root all economic questions are religious. Well, including religion, I could almost reverse the statement by saying that at the root almost all problems of human life are economic and industrial. If so we shall have to have an economic ethics that will be commensurate with the national problems which we are trying to solve in this war and by this draft.

QUESTIONS OF CITIZENSHIP

This draft board had jurisdiction over 6,000 registered men, 868 native citizens and 303 naturalized citizens. Adding 1,212 declarants to the number of citizens we had to take the entire quota of 423 men out of less than one third of the entire draft registrants. The whole draft fell on one third of the population. Now, the men that had done their

duty, that had been led to look at it as a privilege and had taken out their papers were really, to an extent, penalized by the failure of the others in such large proportion to do so; and when we came to inquire why there were as many as 3,637 aliens out of 6,020 registrants, we found that it was quite as much the fault of the American-born people and of those of us who had become citizens before them, as it was of the neglect of the foreign-born neighbors of ours. Many of them told me, when I asked them how they had come to live here for five, ten or fifteen years without taking out their first papers: "Well," they said, "nobody ever said anything to me about it. I didn't know I might go back home. I didn't mean anything wrong by it." And it was my feeling that there should be a change made in the immigration laws whereby every one should be expected to take out citizenship papers within a given time or give a good reason to the government for remaining in this country as an alien and have a government permit so to do. Poles from Austria constitute a very large proportion of our fellow wardsmen in this draft division. At first they were admitted into the Army, if they were declarants, though to their utmost surprise, and they said: "You will hold us off for one year or two or three or four years before you will give us our second papers, and allow us to go in and vote with you. But five minutes after we declare our intention of becoming citizens by asking for our first papers, we are found fit to fight and die for you." That was rather a hard proposition to justify. Foreign consuls protested vigorously that these men were still subjects of their home land, and it was extremely difficult to explain why they should be drafted. Now, by amendments to the immigration law the President of the United States has the right to exempt from the classification of "alien enemies" certain groups or classes of people at his discretion. That just provision should be still more widely extended, and the whole question of alien management in the Army should be centralized under the supervision of one commissioner. There should be established also an independent bureau or, better still, a commissioner who would have the handling or management of this most difficult and yet most essential policy dealing with the alien element in our civilian population.

NATIONAL EFFECT OF THE SELECTIVE SERVICE LAW

Lastly, I wish to speak of the wonderful reach of this selective service law. It has registered and classified the occupations of our men of military age. We never knew what they were before. At last we have begun a census of our industrial resources in order to mobilize them for peace as well as for war. After a while we will have a labor exchange system such as even the state and national bureaus of labor have not yet been able to organize, whereby we shall bring the supply to the demand within some rational and economic and reasonable reach of each other.

Introduction of Colonel Phalen

MAJOR HUBERT WORK said: Colonel Phalen is stationed at Camp Grant, and he worked there very effectively. He is here to give you an examining surgeon's point of view of a registrant.

Address of Colonel James Phalen, Division Surgeon, Camp Grant, Rockford, Ill.

COL. JAMES PHALEN said: I claim a large personal experience in the examination of recruits. I was for two years the recording officer at Columbus Barracks, where each day I examined personally from fifty to a hundred men, and made the entire examination. Since that time on two occasions I have superintended the examination for muster into the United States Army of the Illinois National Guard, and once of the Indiana National Guard. When I was sent to Camp Grant, and one of my duties was to superintend the examination of registrants of the camp, I thought I was most competent to judge what should be the physical standards of a man to become a soldier. I found out that to some extent I was mistaken. I endeavored, at the start, to apply the standard direct of the volunteer to the drafted man, and to some extent it did not work. When they sent the first increment to Camp Grant I took it on myself to be the court of last resort of every man that was considered questionable in that draft. I saw them all as they came up before me. I looked at the men and I said: "What is the matter with you?" "Bad feet, sir." I looked at him, knowing, with my experience with the volunteers, and I said: "Those feet are all right. Passed." Next man, I said: "What is the matter with you?" "I have varicose veins." Having had experience with the volunteers, I said: "Trifling. Passed." And so on down through varicocele and hemorrhoid and various other things. Of that first lot that were brought to me as having been rejected by the examiner, I suppose I sent two thirds of them back to duty. Now, I will say that of the number I returned to duty in this way subsequently a very large proportion of them had to be discharged on a surgeon's certificate of disability. I will say that after I had seen the men come up from that first draft I was a pessimist on the subject of the selective draft. I saw more concentrated malingering and exaggeration than I had ever seen before, and I was pessimistic about it. Of course, I saw every malingerer and every exaggerator in the camp. I will say now that as a very much needed antidote I go down into the camp and look over the ones that have been accepted. Otherwise I should have a very bad impression indeed of our American manhood.

Some time after the first increment had been brought into camp an organization commander brought to me about fifty men, stating that they could not do duty. He gave me the reasons. There were various reasons. I looked them over and said: "These men may be just as worthless as you say they are, but their troubles are not physical. You must go back and make them do duty." About that time we got orders to send men to the southern camps, and you may be quite certain that the men that wanted southern camps were largely men of that class. We heard from them later. There were a number of men sent back from Camp Logan and from some other camps on acount of disability. You cannot make these men do duty. That is a problem which the Local Boards are not up against. They may recognize the malingerer or the exaggerator when they see him, but they are only seeing him for a minute. When he gets to the camp we are not through with him. After an examination we may say: "Yes, you are competent to do duty"; but it is then up to the organization commander to see that he does duty. The man may become such a nuisance that he returns time and time again. Finally he is discharged on a certificate of disability. In making examinations when there are defects that are impossible to detect, the man's personal attitude has got to be taken into consideration to the greatest extent. If a man really wants to do duty and be sent to the camp, he can carry around a lot of minor defects with him all right, but if he is determined he is not going to do duty, he will carry around very many defects.

REMEDIABLE DEFECTS

I had sent to the camp a large number of men accepted under that remediable defect clause. The Surgeon-General's Office called on me for a statement about the so-called remediable defects, and I sent back an endorsement that there were practically no remediable defects; that is, none that were remediable after the men arrived at the camp. If a man has a defect that should be remedied, it would probably be better not to remedy it. He would better be discharged, so that he can have that needed remedy. At the Base Hospital at Camp Grant we have issued a list of operations that must not be done. I am quite in accord with the plan, which has later been adopted, that these remediable defects must be remedied before the men arrive at the camp.

At Camp Grant we prepared a list of nonoperable conditions, which I will read:

Head and Neck: Suppurative otitis media, chronic; mastoiditis, suppurative, chronic; suppurative conditions, chronic, of the antrum of Highmore; cysts, bronchial, thyrolingual or submaxillary; goiter, any variety; plastic operations for deformity of the face, existing prior to entry into federal service; intralaryngeal operations (except after small benign tumor); scarification; external laryngeal operations; operations of the tongue; enucleation of the eye; muscle operations for the correction of squint; cataract; trachoma operations; pansinusitis, suppurative, chronic.

Trunk: Gallbladder, except acute conditions; gastric ulcer, except perforative; abdominal ptosis; abdominal tumors; kidney operations, except acute traumatic; laparotomy, explorative; hernia, postoperative, of all varieties following operations performed prior to entry into federal service; hernia, umbilical and epigastric; hernia with poor muscular development; operations for the relief of pain where the operation was performed prior to entry into the federal service; cystotomy; prostatectomy; fistula in ano.

Genital Region: Varicocele of any degree; hydrocele, any degree; operations of the testicle or vas; operations for epispadias and hypospadias; stricture.

Extremities: Hallux valgus; tendon plastic operations; old fracture with deformity; ununited fracture, existing prior to entry into federal service; ankylosis; arthroplasty; osteomyelitis, chronic; exostosis or deposits, gonorrheal; spurs on the os calcis; contracture, severe, following extensive burns; Dupuytren's contracture existing prior to entry into federal service; internal derangements of the knee joint (any operation); varicose veins of the leg.

That limited the surgical operations to a great extent. We saw that after those operations a man would not be fit for military service.

EXAMINATION OF RECRUITS

Just a point on the examination, and that is for the Local Board not to let the registrant know what he is troubled with. Quite certainly, if the man is not very strongly disposed to do duty, and you look at him and say "Flatfoot," and then shake your head and deliberate as to whether you had better accept him, you will have trouble at the camp.

Now, we had some trouble to some extent in our examinations at the recruiting depots. I take a look at a man's feet and casually remark to him: "Your feet never trouble you?" "Oh, no, sir, no, sir, no." All right; then I slip over to the top of his head, and I say: "Pes planus." The Latin is not very good, but the clerk got down there the fact that he had flatfoot, and he did not know it; and so it was with a great many of those other conditions.

Our best example is irritable heart. Soldiers find out they have irritable heart, and when a soldier does find it out he is a very difficult man to deal with. At a clinic held in our camp recently we had a cardiovascular specialist give a clinic on irritable heart. We brought in from the wards a number of men with irritable heart, and it was a very good demonstration undoubtedly, but he expended every man; so far as any further service to the government is concerned, he expended every man that we showed him.

The point I can best bring out is: First, that one has to study the attitude and make the most of the attitude of the man. If a man has a defect that one considers questionable, then everything depends on his attitude. If he is disposed to go into the service, he will probably carry it around without a bit of trouble. If he is disposed not to go, and does not want to go, he is going to come back from the camp because if he has a defect and we pass him to an organization commander, he cannot make the man do duty. He is going to come back on us on a sick report time and again until finally he is discharged. The next point is to be very careful about not letting the man who is being examined know of any defect which has been noticed but which does not possibly disqualify him.

Introduction of Lieut.-Col. J. S. Easby-Smith

MAJOR HUBERT WORK said: Lieut.-Col. J. S. Easby-Smith of Washington, representing Provost Marshal-General Crowder, will next speak. If during his talk any question occurs to you, make a note of it and hand it to the secretary. When Colonel Easby-Smith is through speaking he will be glad to answer any questions.

Address of Lieut.-Col. J. S. Easby-Smith, Representing Provost Marshal-General Crowder

LIEUT.-COL. J. S. EASBY-SMITH said: Just before I left Washington, General Crowder said: "I want you to deliver to the medical men assembled in Chicago, and to the members of the boards who may be there, a message." He said: "Neither you nor I can express adequately what ought to be said to them, because there is no language which can express the debt of gratitude which the American people owe to the medical profession of this country for their assistance in the administration of the Selective Service Law. But tell them, as best you can, how much their work is valued and appreciated."

Colonel Billings mentioned me, and so did Major Work, as having had a great deal to do with the formulation of the Selective Service Regulations. They gave you, I fear, a false impression. The one man in this country to whom is due credit for the gigantic success of the Selective Service Law is Major-General Crowder. He is one of the ablest men in public life today. After all, it is the man who finally passes on questions, the man who selects or rejects what is proposed to him, who is responsible; and unless he is a man of the caliber to decide rightly, things will go wrongly. Never from the day he became Provost Marshal-General to this time has General Crowder decided wrongly.

A brief description of the working machinery of the Selective Service System and of its general character may properly be a preface to what I am going to say.

Let us think of the administrative edifice of the law as a pyramid, and begin at the apex. There, at the apex, is the President of the United States, who, by the Selective Service Law, passed by Congress, is given supreme discretion in the making of regulations for the application and administration of this law. Under his Secretary of War he has placed on the Provost Marshal-General the responsibility for the administration of that law. In providing for the machinery for the administration of the law it immediately became apparent to General Crowder that it was utterly impossible to attempt an administration of this law through a bureau or an office or a department in Washington; impracticable, impossible and also impolitic. Why? Because this law, to be popular and successful, must be enforced by the people at home, by the members of the community whose sons are going forth to battle. So that the very first thing to do was to decentralize this administration and put the control in each state, under your chosen leader in each state, your Governor; and the natural officer to act for him in this matter was, of course, his Adjutant-General. That having been done, it then became necessary for the state to decentralize. The law had practically provided for that, by authorizing Local Boards to pass, in the first instance, on all these cases, whether it be the question of a man's availability or eligibility or liability for draft, or his physical qualifications to go into the Army. So in the next stratum below come the Local Boards, and then the District Boards, to review, as courts of appeal, decisions of the Local Boards in all cases except in industrial and agricultural claims, in which they have original jurisdiction. Of course, Local Boards, with appellate jurisdiction in the District Boards, decide questions of physical qualifications. The only question which is not final with the boards, whether it be a Local Board, a Medical Advisory Board or a District Board, is the question of physical qualification; because, after all, that final decision is vested in the surgeon at the camp.

During the first draft, I have no doubt perhaps the majority of you men served in one capacity or another, either on Local Boards or as examining physicians, or as members of District Boards. The regulations were rather small in number; they were rather small in volume; but the boards taking the law as their constitution, and the few regulations which were issued as their immediate guide, did a tremendous work in a comparatively brief time. After the great rush of the first draft was over, and after you had selected and physically examined enough men to fill the camps that were then available, a breathing spell came. It was apparent to everybody, not only to the Provost Marshal-General's Office, but to you, that some more definite system must be provided. There has been something said here of the regulations having been prepared by the Provost Marshal-General and by his office. That is not wholly correct. When it became necessary to adopt new, and what we hoped would be permanent, regulations, we asked the governors all over this country to send to Washington men, laymen, lawyers and physicians who had shown great proficiency in the administration of the Selective Service Law, so that with their aid and advice a set of regulations might be prepared, not only from the standpoint arising from the experience of the Provost Marshal-General's Office, but from the standpoint of you men in the field who were doing the work and deciding the practical questions.

Therefore, a committee was appointed in the Provost Marshal-General's Office, and I had the honor to be one of that committee, and conferred with these men from the field.

Next to General Crowder the man who has done more as an individual than any other man to make the administration of the Selective Service Law a success is Hugh Johnson, who, entering the Provost Marshal-General's Office a year ago as a captain of cavalry, left it as a colonel, and is now a brigadier-general at the head of one of the most important bureaus of the War Department. With him and with the board members who came in, we worked. We asked for suggestions. We conferred with them for weeks.

We realized that with all these workers in the field it was necessary to have auxiliary forces to aid in this work, because we foresaw then that we should not have to raise merely an army of 687,000 men, but that we should have to take this array of eight or nine million men and examine every one of them, to decide what? First, his availability to go into the army, and that availability measured inversely by his value in the place that he then occupied in our domestic arrangement; and, secondly, to determine the physical qualifications of each of those millions of men. It was the purpose of General Crowder that instead of merely dividing these men into the sheep and the goats as we had before; that is, into the men who were to go and the men who were to stay at home; we must take the whole mass and classify them, group them into classes, so that when the time came—if the time did come, and, as you know, the time has come—when we had to send great bodies of men forward, we should have lists of men classified and prepared, ready to be called in their order of availability, in the order of the inverse ratio to the necessity for their remaining at home, and in direct ratio to their lack of value to the community. So that it was decided to make

five classes, and put into Class 1 men who were immediately available, and so on running down through the five classes to men who were legally exempt, required to be exempted by the law, or put there on account of moral or physical deficiency.

When we finally submitted to the Secretary of War, after a number of conferences, the final classification rules, and he saw the classification sheet, and the various groupings into which we classed these men, and we read off to him that we had in Class 5 the lunatics, the aliens who had not declared their intention, the aliens who had not waived, the morally deficient, the physically deficient, the federal and state, legislative, executive and judicial officers, ministers of the gospel and divinity students, and finally alien enemies, the secretary said: "Well, you have got a queer assortment there, and I am afraid that if I were a few years younger I should belong in Class 5, among the aliens, lunatics and convicts."

However, having prepared the regulations for classification, it became necessary to provide for the physical examinations. We realized that we needed more aid there from the outside than perhaps on any other branch of the regulations, and to some of the prominent medical men of this country, to some of the men who have been high in the councils of the American Medical Association, is due, individually, a large share of the reward that will come to the medical men for the work that has been done in regard to physical examination.

When we first began to study and write these regulations we sent for one man, Dr. George H. Simmons, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

We also sent for a man who had had a great deal of experience throughout the first draft as a member of the District Board for the District of Columbia, Dr. William C. Woodward, health officer of the District of Columbia, and an honored member of your Association, because we realized the necessity of auxiliary organizations to help the boards do their work, the base of the pyramid. At the same time, we appealed to the American Bar Association for help in another direction. Dr. Simmons and Dr. Woodward came and consulted with us; and as a result of the conferences a joint committee was appointed composed, I think, of three members of the American Medical Association, and representatives of the Surgeon-General's Office and of the Council of Defense.

DEVELOPMENT OF REGULATIONS

It soon became apparent that the one thing that we all ought to strive for with reference to physical examinations was to secure uniformity. You all know perfectly well that the Army regulations, which are the result of years and years of Army experience, were built on the volunteer proposition. They were told to secure a man 100 per cent physically perfect. The Army was small. Men came and volunteered their services. The Army could turn down a man who was not physically perfect, practically, and the regulations were based on that. Of course, the regulations that were to apply to men to be selected under the law did not require a 100 per cent man, and no need to. During the first draft and until recently, and right up to this time, there has been an application of one standard by the boards and another standard by the surgeons at the camp, both doing their full duty. Boards were governed by the regulations issued for their instruction from the office of the Provost Marshal-General, and camp surgeons were governed by their Army regulations. There were about 29 or 30 per cent. of men rejected by the boards in the first draft, and 7 or 8 per cent. of those sent to camp were rejected, making some 38 per cent. of men finally rejected as physically unfit under the first draft. I will show presently how this has been very much improved. Concerning the new regulations, I will not go into detail at any great length, except to say that Form 64 was prepared, not for the purpose of governing camp surgeons, but primarily to give Local and Medical Advisory Boards and District Boards standards for the qualifications of registrants. It was prepared in the Surgeon-General's Office by a committee that had in view the best application of it in the camp; and subsequently it was promulgated for use in camps. Defects were discovered. It became necessary, for various reasons, to print a new edition, and this new edition, Form 75, was prepared for the express purpose of raising the standards for boards as set out in Form 64, and somewhat lowering the standards which governed Army surgeons, so that there could be issued a document which would give the boards and the camp surgeons the same standards, so that they could both proceed according to the same rules, and we hope thereby to reduce this lack of uniformity to a minimum. This was prepared by a committee appointed by the Surgeon-General, of which committee a very important member was Colonel Billings. I need not dilate on his capabilities as a physician; he was active here as medical aide to the Governor of Illinois, and he was subsequently in the Provost Marshal-General's Office and transferred later to the Surgeon-General's Office. With a thorough familiarity with the needs of the Selective Service System, he worked with this committee of regular Army surgeons in the Surgeon-General's Office; and I believe that they have produced a work here which removes all the inconsistencies and all the doubts in the previous physical examination regulations. It is a book which will live up to its title. It was written in the Surgeon-General's Office, and the title is: "Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: For the Use of Medical Officers of the Regular Army, National Army, National Guard, Medical Reserve Corps, Recruiting Officers of the United States Army, and of Local and District Boards and Medical Advisory Boards Under the Selective Service Regulations."

For the boards it is issued by the Provost Marshal-General's Office. For the camp surgeons, it will be issued by the office of the Adjutant-General of the Army, with perhaps some trifling changes as to procedure to govern Army camp surgeons; but the identical standards will be used. In other words, the edition for the Army issued through the Adjutant-General's Office will be identical in the statement of reasons for rejection and acceptance which are to govern boards; and when that goes out generally, which will be in a few days, we shall then have removed the greatest reason for the lack of uniformity. At present I am glad to say that although under the first draft physical rejections by the boards, plus physical rejections at the camp, ran up to 38 per cent., now, under the statistics which we have today, the total rejections by the boards, plus the rejections at camp, will not run over 30 per cent. Under the old regulations, if a man was not physically qualified for general military service, he was rejected. There were only two classes, men fit for military service and men unfit for general military service. There was no middle ground at all. The grouping here in this book is the same as in Form 64. Group A, men physically fit for general military service; Group B, remediable deferred group.

And let me warn you now: There have been some mistakes made, and abuses must occur while we are dealing with millions of men and with thousands and tens of thousands of men administering the law. Do not ever make the mistake of sending a man to camp, no matter what sort of a call there is, who is in the remediable Group B, unless you get a specific order to send those men forward to be remedied at a place that has been designated by the Surgeon-General.

Then we have Group C men, qualified for special or limited military service, and Group D, those totally rejected.

Now, I want to say that the men in the deferred remediable group, plus the men in the special and limited military service group, plus the men totally rejected and put in Class D, do not aggregate more than 29 per cent. of all the registrants now being examined. And the men who are being held for special or limited military service form the other 10 per cent. of them.

We have today in Class 1 nearly 250,000 men qualified for special or limited military service who, under the old regulations, would have gone into the discard.

There is another thing that the boards ought to be particularly careful about in qualifying or grouping men for special or limited military service, and that is that they must not only find that they are suffering with a defect which cannot be remedied and which disqualifies them for general military service, though it does not disqualify them for special or limited military service, but they must be satisfied that notwithstanding the man's defect, he is successfully following in civil life some occupation which might be useful in the Army. Not only that, but they should be extremely careful to enter on the record the identical occupation which he is qualified to follow.

For example, if you find a man who has lost one or two fingers, which would disqualify him for general military service—of course, not remediable, because you cannot replace his fingers—but you find that man is and has been for four or five years an expert telephone switchboard installer, or something of that sort, then you put that man down as qualified for special and limited military service as a wire man or switchboard installer.

You have another man who may be totally blind in one eye, and the sight of the other eye perfect. You may find that he has been perfectly successful as a telegraph operator, or in some other capacity. You hold him in that special class, and name the particular capacity in which he is available. This is an important thing, so that when we send a call for men, and we need men in these special capacities, we shall know

that we have got 250,000 men from which we can select maybe nearly all of them to fill up these places which must be filled in the Army. If you enlist or induct a thousand men and send them to a camp or post, a proportion of those men, notwithstanding they are soldiers, have to do certain things which do not require the physical capacity of a man who has to carry his knapsack and rifle; and it is to fill the places of men of that sort that we can use these special and limited service men; and we have saved 250,000 of them who would have gone into the discard.

We hope that by the uniform application of the new rules there will be a still smaller percentage of men lost on account of physical rejections.

Mr. Taylor spoke of the enormous amount of free dental work done in Rochester, N. Y. It is a great conception. It fits men not only for military life, but also for civil life afterward.

RECONSTRUCTION WORK

Colonel Billings, now transferred from our office to the office of the Surgeon-General, has been put at the head of what is going to be the greatest work in this country; that is, the reconstruction of our wounded when they come back from France. In the meantime the intention is to attempt a remedy, a reconstruction, of thousands and hundreds of thousands of men of draft age in this country, if possible, and I perhaps will not be revealing any official secrets when I say that in my opinion Colonel Billings, before the time is reached when his force will be occupied in reconstructing our men coming back from France, will be reconstructing and remedying some of these men in the deferred remediable group, so that we shall recall these men, and make them fit.

MARYLAND DOING RECONSTRUCTION WORK

I want to say this, too: States are going ahead, many of them, and doing this remediable work. I think the first state to begin it was Maryland. I believe the Medical Aide from Maryland is here today. I hope he is. I understand that the state authorities, in conjunction with the Medical Aide and the boards, are now, in the State of Maryland, actually doing work of throwing the hospitals open and remedying many of these men put into the deferred remediable group. That is going to be followed in the other states; so that we shall have the state authorities, the county and municipal authorities who will be working hand in hand with the Surgeon-General's Office, preparing many of these men for service. But remember, you have got nothing to do for these men until you get a specific order to send a man of the deferred remediable group to a certain place designated by the Surgeon-General to be remedied.

DENTAL ASSISTANCE

Let me tell you what the dentists have done: The National Dental Association—I forget just the association's name—began several months ago to get the promise of all the dentists of the country, especially those who belong to the Association, to do free dental work for men who have been called; and up to date they have performed 300,000 dental operations; they have remedied 300,000 men who needed dental work done before they went to camp.

You are engaged in a gigantic task. It is hard to conceive what this task is. It is hard to visualize it. Think that one of the lower strata of the pyramid is composed of more than 15,000 members of Local and District Boards. Think of the enormous personnel actively doing work in classifying these men as to availability, and grouping them as to their physical qualifications. But you cannot stop there. Do you know that outside of the medical members of the Local and District Boards there are 20,000 physicians of this country working with Local and District Boards as examining physicians and as members of Medical Advisory Boards, besides the 20,000 that have already gone into the Army? Do you realize that there are more than 15,000 permanent members of Legal Advisory Boards, three to every Local Board, and that the associate members, called in to do the work when the necessity requires throughout the classification period, number more than 90,000 lawyers in this country helping the Local Boards? They have not responded any better than the medical profession has. I am a lawyer myself, but I take my hat off to the doctors.

Do you know we have 3,000,000 men under arms today and that the draft boards of this country have sent to camp 1,600,000 of these men? The other 1,400,000 are men who are enlisted in the National Guard, Regular Army, the Navy and the Marine Corps. And I want to tell you something else: Sixty per cent. of those 1,400,000 who are now in the Regular Army, National Guard, Navy and the Marine Corps came from your registration lists, and most of them went after you classified them and examined them and found them available for military duty and physically qualified for general military service; so that the draft boards of this country have sent under arms two and a half million men. The other half million are the men, a few of whom are over 31, and the others who are under 21. Do not get pessimistic, and do not be disappointed because the recent registration did not reach a million men. There is only one answer to it, and that is that there were two or three hundred thousand young men of the age of 21 years who voluntarily enlisted in the last twelve months.

I know that I do not have to appeal to your patriotism. You have shown that. You have shown that you realize that there is nothing worth while in human life today except to win this war, because if we do not win it there will not be anything worth while for any of us after it is over.

General Crowder said to me as I left Washington, and I realize the truth of it: "You cannot and I cannot say to these men what ought to be said to them; neither you nor I, nor any human tongue can ever express the gratitude which not only the Provost Marshal-General's Office but the whole American nation owes to these men who have labored faithfully and without compensation." The Local Boards and the District Boards have been paid nothing but a nominal compensation, not with any idea on the part of the government that it is real compensation; and many who are able have declined to receive any. And when you go to the nine or ten thousand members of the Medical Advisory Boards, you know well that they not only receive no compensation, but they furnish material, and frequently furnish for the use of the boards the offices for which they pay rent. So that it is useless to try to describe the gigantic task that has been done or the debt of gratitude which is due to these men for what they have done.

DISCUSSION

The Work of the Dental Profession

DR. CHARLES F. ASH, New York, said: Prior to entry of the United States into the great war, the dental profession conceived the idea to make fit those men who were joining the Army and entering through the recruiting stations, believing, as we did then, that before long the United States would be, of course, one of the Allies. At the time we entered the war there were less than 6,000 dentists in the organization. We got the assistance of the Surgeon-General's Office to promulgate a plan whereby we were to ask the members of the profession to join the league, and we asked each man who joined the league and who was willing to give his service to give one hour a day and furnish the material to make dentally fit those men who became registered, and who were fitted for general military service.

We have today, out of a membership of about 45,000 dentists in the United States, over 15,000 dentists who have joined this league, and are giving service of one hour a day and material.

Up to May 1, we had recorded 236,115 operations. When I say "recorded" I mean we had the individual history of those cases, the name, the board number, and what the operation was, signed by the man who had the operation.

June 1, we had 336,931 operations recorded, showing an increase of over 100,000 operations during the month of May. In addition to that I know we have done at least 150,000 operations of which there was no record kept. So that we are safe in saying that over 500,000 operations were performed by the dental profession since September, 1917.

We are the infant member of the medical profession, and as such we should observe proper modesty, and we are glad to do so; but we are imbued with the idea that we are in this war to a successful finish, no matter how long it may take. The dental profession is satisfied that it is going to try to do its bit. We want to ask the cooperation of the members of the medical boards. If you will give us an opportunity to get the names of the registrants certified for general military service, we will be extremely grateful to you.

Rejected Men at Camp Logan, Texas

MAJOR J. N. HALL, Camp Logan, Texas, said: I was glad to hear the report of the conditions at Camp Grant. I was the chairman of the board at Camp Logan, Texas, for the surgeon's certificates of disability to whom came these men who were sick. I entirely agree with Colonel Phelan in his remark that the men sent must have been the poor ones. We received 4,000 of these men, and in a short time we sent back three solid trainloads, 1,500 of these men, because of various disabilities. There is no need in the world of letting

men come in with such defects as we found in these men. We found cases of arthritis and old tuberculous joints. Twenty-six men had such diseases of the eye as anopia. Of the 3,225 men examined all did not come from the draft, but in part were the regular Guard division, the Regulars in the camp, and also the draft men sent in. I have had 50,000 men pass before me, and I feel I ought to say something about them. There were eighteen with ankylosed joint; there were 164 with defective mental development; 179 cases of various deformities, from an absence of the pectoralis major muscles to absence of fingers and toes. We had a man who could not hold a pencil in his fingers. There were men with tuberculous spines; twenty men with fingers off so that they could not hold a gun in their right hand, and many that had no right forefinger; 250 hernias were operated on and the men returned to service. In that particular, I wish to dissent from the view expressed here today by one of the speakers. We had a dozen men with six toes, and many thrown out because they would not have the extra toe amputated.

(To be continued)

Therapeutics

FRENCH METHODS IN THE TREATMENT OF EPIDEMIC MENINGITIS

In view of the continued presence of epidemic meningitis in both military and civil communities in many different parts of the country, an especially keen interest is now felt in the successful treatment of this much feared disease. It may therefore be of value at this time to review briefly certain phases of the treatment of epidemic meningitis as practiced in France and described in detail by Dopter in his valuable little book.[1]

INTRASPINAL INJECTION OF ANTIMENINGITIS SERUM

In France, as elsewhere, it is regarded as essential that antimeningitis serum should be brought in direct contact with the lesions and with the cocci that produce them, which means that in practically all cases of meningococcus infection the serum must be introduced into the subarachnoid space. Of course, cases of meningococcemia without meningitis require intravenous injections of serum, and in the earliest stages of meningococcus infection and meningitis, intravenous injections are being urged by Herrick. Local meningococcus processes outside of the nervous system, for example, pleuritis, arthritis and corneal ulcer, should be treated by direct application of antimeningococcus serum.

For lumbar puncture Dopter recommends the recumbent position on the side at the edge of the bed, with the thighs strongly flexed on the abdomen and the head on the chest. The space between the fourth and fifth lumbar vertebrae is located by drawing a line from one iliac crest to the other, this line passing across the upper limit of the space. The needle is introduced in the median line in a slightly upward direction, and cerebrospinal fluid allowed to escape, as a rule to an extent somewhat larger than the amount of serum to be injected. The serum is warmed to 38 C. (100.4 F.) and injected slowly but continuously. After the injection the patient should be placed so that the pelvis is elevated and the head and chest lowered for two or three hours, in order that the serum more readily may reach upper regions of the subarachnoid space, especially the part about the optic chiasm which is nearly always most severely involved. Before injecting the serum the spinal canal may be washed out with warm sterile salt solution, as much salt solution being used each time as the quantity of cerebrospinal fluid originally withdrawn; Aubertin and Chabanier believe that this procedure is better than injection of serum only.

In the adult it is recommended that the quantity of serum injected at one time should not be less than 20 c.c.; in grave cases large quantities are indicated; 10 c.c. is regarded as insufficient under all circumstances; even in nurslings, it is necessary to inject from 15 to 20 c.c. and sometimes 30 c.c. From these statements we learn that in France, as in this country and elsewhere, antimeningitis serum is not yet standardized in such manner that the dose can be stated in definite units; as the matter now stands, the physician must use what he believes to be the most potent serum obtainable in maximum quantities.

A single injection even of a large quantity is rarely sufficient to arrest the infection completely; as the serum rapidly passes into the general circulation, remaining in contact with the lesions only a short time, the improvement after the first injection usually is only transitory, and in a day or two the condition becomes worse again and new injections must be given. Hence Dopter advises that as a rule the injections be repeated daily for three or four days. If the symptoms in the meantime become worse, two injections a day may be given, provided there are no indications that the serum is not being absorbed.

IMPORTANCE OF REPEATED EXAMINATIONS OF CEREBROSPINAL FLUID

After a series of injections, the symptoms in most cases subside and the outlook appears good, but Dopter specially emphasizes that the symptoms are not the most reliable guide, and that the best indications as to the progress of the case are obtained from a careful study of the cerebrospinal fluid. Whatever the general condition of the patient may be, if the fluid shows leukocytes and meningococci, the meningitic process is still active and new injections of serum are necessary. It may happen that after injections of serum all symptoms subside to reappear suddenly, the temperature rising again, with headache and stiffness of the neck. This may mean either a reawakening of the meningitis or certain serotoxic phenomena discussed a little later. If it concerns a true meningitic recidivation, the fluid is turbid and contains leukocytes and cocci, and of course more serum is in order; if it concerns the second possibility the fluid may be clear, perhaps amber colored, and without meningococci, and in this case no injections are indicated. Netter advises that in all cases lumbar puncture should be made from five to seven days after the first injection, as one then sometimes, so to speak, may surprise the enemy as it is preparing for a new attack. Dopter says to watch the patient with needle in hand and the eye at the microscope, and continue the injections so long as the meningococcus is present. It may be necessary to puncture and inject serum from as many as eight to twelve times, and to give from 150 to 250 c.c. of serum before success is attained.

When a physician sees a patient with the symptoms of cerebrospinal meningitis, a lumbar puncture should be made at once to determine whether the cerebrospinal fluid is clear or clouded. The fluid should be centrifugated and smears examined with respect to

1. Dopter: Diagnostic et traitement de la méningite cérébro-spinale, Paris, 1918.

cells and bacteria. If the fluid is clear and does not contain any abnormal elements, the idea of meningitis must be put aside at least for the time being. But if the fluid, whether clouded or clear, contains polymorphonuclear leukocytes and bacteria, some form of meningitis is present. If the bacteria present are clearly recognizable as streptococci or pneumococci or bacilli, the meningitis would not seem to be due to the meningococcus; but if the smears contain intracellular or extracellular cocci, shaped like coffee beans, and not taking the Gram stain, the case may be regarded as one of epidemic meningitis, and now it would be highly imprudent to wait two or three days for complete bacteriologic identification by means of culture and agglutination before injecting the serum, because the patient then would lose the great benefit of early injection of serum. In case a most careful examination of smears fails to reveal any bacteria at the same time as numerous leukocytes are found to be present, experience has shown that the meningococcus nearly always is the cause of the infection. In the presence of an epidemic, injection of serum should not be delayed under any circumstances if the symptoms point to cerebrospinal meningitis. When it is impossible to examine the fluid bacteriologically, serum should be injected and the injection repeated the next day; if the symptoms subside, one should wait two or three days and then give a third injection; but if the symptoms appear to tend to persist, injection should be made again in from twenty-four to thirty-six hours.

Fig. 1.—Ventricular puncture followed by injection of serum.

MENINGEAL IRRITATION FROM SERUM—"SERUM MENINGITIS"

Besides the well known phenomena of serum disease, intraspinal injection of horse serum sometimes appears to produce symptoms that suggest an aggravation of the meningitis. Dopter sketches the course of events in such cases somewhat as follows: A patient receives several injections of serum, and the symptoms subside; but a few days later, usually about the seventh to the ninth day after the first injection, headache, stiffness of the neck, vomiting, etc., may reappear; lumbar puncture is made and serum perhaps injected again, and the headache and pain in the back increase with dyspnea and rise in temperature only to disappear again after from twelve to twenty-four hours or thereabouts. These phenomena, sometimes intensified, may come on regularly after each new injection of serum, but the spinal fluid remains clear; leukocytes may be present, but these are well preserved, whereas in meningococcus meningitis they usually are degenerated, and meningococci are absent. These symptoms are associated often with cutaneous eruptions and joint phenomena. The most reasonable explanation of these meningitic manifestations is that they are due to mechanical and toxic effects of reactions leading to the formation of precipitate in the cerebrospinal fluid. We know that specific precipitins for horse serum develop in the blood of persons injected with antidiphtheria (horse) serum, and the cerebrospinal fluid of patients injected intraspinally with antimeningitis serum may form precipitates when mixed with the serum outside the body. It consequently is possible that precipitates may result in two ways: (1) from the action of the antimeningitis serum on the meningococcal proteins in the cerebrospinal fluid, or (2) from the action of precipitins on the proteins of the antimeningitis serum, the precipitins in this case having passed into the cerebrospinal fluid from the blood of the patient.

CAUSES OF FAILURE OF SERUM TREATMENT

According to Dopter, serum treatment of meningitis by French physicians gives a marked reduction not only in the death rate, but also in the duration and severity of the attack, and especially in the number of calamitous sequels (deafness, blindness and paralyses of various sorts). In discussing the failures of the serum treatment of meningitis, Dopter points out that the death rate is highest under 2 years; that chronic diseases and conditions of lowered resistance in general also increase the death rate; that in the fulminant attack, which may end in death after a few hours, there is little chance of success; that sometimes the attack at first is so mild that for some days the patient may continue his usual work to fall in a sudden coma and die after a few hours; and that epidemic meningitis may be associated with grave septicemia as shown by petechial and purpuric eruptions with or without internal complications such as pneumonia, pericarditis, etc., and in this group the death rate is high. Here, especially, prompt intravenous injections of antimeningitis serum in large doses are indicated.

Like all forms of serum therapy, the antimeningitis serum is most effective when given early; the longer after the onset serum is injected, the less its life-saving effect; in the earliest stages, exudate is just forming; but later, the meninges are covered with a dense fibrinopurulent exudate in the depths of which the meningococci can hardly be reached by the serum, these changes being usually most marked at the base of the brain, and it is evident that the serum cannot possibly have the same local effect in the later stages of the attack as at the beginning. All statistics agree in showing much more favorable results early in the disease than later. Dopter states that early in the war, meningitic patients were sent to the rear before they were injected with serum, and during this time the death rate varied from 45 to 55 per cent.; but from the day when it was made possible to inject the serum more promptly, the death rate fell to about 15 per cent. — a most striking demonstration of the profound influence exercised by the time of injection.

It is now hardly necessary to remark that subcutaneous injections are not effective — the serum must be injected into the cerebrospinal space as the rule,

and in sufficient quantities, and the injections repeated according to the indications in the individual case, special care being taken always not to stop too soon. It may happen that the serum is injected in such a way that it accumulates in a subdural cavity without reaching the subarachnoid space proper, and that on subsequent punctures this serum is withdrawn and new serum injected, the serum at no time coming in direct contact with the infected tissues. Another cause of failure may be mixed infection with staphylococci, streptococci, influenza bacilli, pneumococci, tubercle bacilli or other bacteria. Of course, antimeningitis serum is without effect in meningitis due wholly to some other microbe than the meningococcus. Cases do occur in which the meningococcus becomes associated with some one or other of the bacteria mentioned, and in such cases the serum treatment may destroy the meningococcus but have no action on the associated bacteria. Cases have recently been described (Netter, Mathers) in which the meningococcus and pneumococcus were associated, and in such cases, in which the prognosis is always bad, double serum treatment should be tried.

Further causes of failure may be peculiarities of the lesions in the central nervous system. Usually the lesions are most pronounced at the base of the brain, but in some cases in the spinal canal. These regions are not equally accessible to the serum as usually introduced, as the serum may not reach readily the cerebral regions, especially when the quantity injected is not large. Dopter says that as a rule the patients that present cerebral symptoms with delirium, etc., resist the action of the serum more than others. Then there may be meningococcal foci outside of the meninges as, for instance, abscesses, large or small, either subpial or deeper. Instances are described of death from meningitis treated with serum, in which the meninges were found perfectly normal after death, there being, however, abscesses in the brain. Sometimes, when the disease is prolonged, conditions develop that prevent the serum from reaching all parts of the meninges. Partitions dividing the subarachnoid space into independent cavities may form; thus the spinal canal may become shut off from the brain cavity, so that serum introduced by lumbar puncture cannot reach the surfaces of the brain, an effect that may be produced by masses of exudate in the region of the bulb. The spinal cavity may be partitioned, as in the case described by Cantas, in which he obtained only 2 cm. of fluid by lumbar puncture, and the injection of serum encountered considerable resistance; here cervical punctures were made, followed by injection of serum, and recovery ensued. When high puncture is being made, the patient should lie on the side with the back bent, and the needle should be introduced in the space between the sixth and seventh cervical vertebrae. Normally, the subarachnoid space communicates freely with the ventricles of the brain; in the usual form of meningitis it is the subarachnoid space that is the seat of infection, now easily reached by serum introduced by lumbar puncture; but sometimes the infection invades the ventricles and causes ependymitis, and in this case the paths of communication between the ventricles and the subarachnoid space may become more or less blocked so that serum injected in the usual way cannot reach the ventricles at all. In such cases also the membranes may be found normal after death while the ventricles are dilated and filled with clouded, purulent fluid.

Speaking generally, the symptoms in such cases under the usual serum treatment at first improve; the cerebrospinal fluid becomes clear; but soon a remission occurs which resists further treatment, while the cerebrospinal fluid may be practically normal, but scanty. Here the injection into the ventricles after death of a solution of some dye may not result in any coloration of the cerebrospinal fluid, showing that the communications are interrupted, and failure of serum treatment as usually practiced seems easily explained. Sometimes the main passages are blocked, but minute fissures remain open through which meningococci may find their way from the ventricles and maintain a meningeal inflammation. In France the opinion seems to be growing that most of the protracted cases of epidemic meningitis are of this walled-in type.

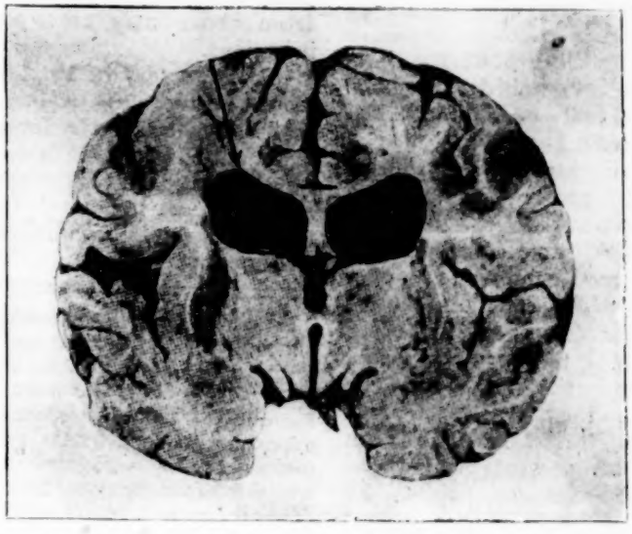

Fig. 2.—Section revealing dilatation of the ventricles. The arrow shows the course of the needle.

TREATMENT OF MENINGOCOCCUS EPENDYMITIS AND WALLED-IN MENINGITIS

As it is essential that antimeningococcus serum must come into direct contact with the meningococci, it is necessary in cases like these just outlined to inject the serum directly into the ventricles and other cavities. Cushing and Sladen appear to have been the first to do this; they withdrew the fluid in the ventricle and replaced it with an equal quantity of serum. Since then this procedure has been repeated in some cases with success, and now it must be regarded as the duty of the physician who undertakes the treatment of patients with epidemic meningitis to be prepared to puncture and inject the ventricles in cases of blockade. In infants, puncture may be made on a line with the external angle of the anterior fontanel about 2.5 cm. from the median line, the needle passing from above downward and a little inward at an angle of about 20 degrees for from 2 to 4 cm. when the ventricle is reached. Dopter recommends that from 30 to 60 c.c. of fluid be withdrawn and from 20 to 30 c.c. of serum injected, great pains being taken that the direction of the needle is not changed before the commencement of the injection. In older children and in adults, puncture must be preceded by trephining.

Three routes are available, the superior or frontal, the lateral or temporal, and the posterior. The superior route is preferred by Dopter; a small, external opening is made at a point 3 cm. in front of the bregma and from 2.5 to 3 cm. away from the median line, and a needle, from 7 to 10 cm. long and 7 or 8 mm. in diameter, is introduced obliquely from above downward and inward at an angle of from 15 to 18 degrees. At a depth of about 4 cm., fluid generally appears; sometimes it may be necessary to aspirate. The fluid should be allowed to run out, but not longer than while the patient seems perfectly well; the needle being maintained carefully in its place, a quantity of serum is injected slowly to the extent of about two thirds of the fluid withdrawn. This is a harmless procedure which has been followed by recovery in some apparently hopeless cases; but the true merits of the method are difficult to determine because so far it has been applied only in very grave, seemingly hopeless cases, and usually late in the disease. Dopter advises that this treatment should be used more freely, and that the injections should be repeated. He says that it must be borne in mind that in some cases both lateral ventricles should be punctured.

The situation established by closure of the ventricles being a most grave one, it should be met by a definite line of conduct, not timidly or blindly. The indications may be thus outlined: Usually the meningeal symptoms improve after intraspinal serum treatment. The cerebrospinal fluid becomes nearly normal; but in a few days the fever rises again, the headache increases, the patient becomes somnolent, perhaps delirious, the reflexes are reduced, and lumbar puncture may yield a fluid which is clear or almost clear and free from meningococci. Sometimes the fluid is a little yellowish, as if the serum injected had not been absorbed, and the fluid may be under but little pressure and scanty; sometimes one observes amaurosis, and there may be such signs of increased intracranial pressures as papillary congestion and contraction of the pupils. In spite of further injections of serum the general condition becomes aggravated, the headache increases and emaciation with muscular atrophy and contractures develops. The process should not be allowed to come to such extremes as this if it can be avoided. The earliest suspicious symptoms should prepare the physician for prompt action; more particularly rapid aggravation after a period of calm following injections of serum, persistence of symptoms in spite of improvement in the cerebrospinal fluid, which is yellow and under low pressure, increase of headache, and convulsions, if a little more serum is injected than cerebrospinal fluid withdrawn. It is true that none of these symptoms are pathognomonic. They may be imitated closely in the so-called serum meningitis; the symptoms in this case, however, soon subside, especially after lumbar puncture, but not in the other.

It is only by careful consideration of all the signs and symptoms that the existence of meningococcus ependymitis with blockade may be suspected or the passing of a meningeal process into a meningoventricular recognized. In the nursling the diagnosis is aided by tension of the fontanel. The diagnosis is more difficult when the phenomena of meningeal and ventricular involvement are present from the beginning; here no improvement follows serum treatment, except possibly in the cerebrospinal fluid. It seems evident that the early recognition and direct treatment of ventriculomeningitis with blockade will save life.

When the brain cavity as a whole has become separated from the spinal, Dopter urges introduction of the serum directly about the base of the brain. The route mentioned for this purpose is the sphenoidal fissure (*la fente sphenoïdale*), which is reached by a trochar entered just below the supra-orbital notch and passed along the orbital vault. Fluid is withdrawn and serum injected. Cazamian has used this method in three cases, and found it not difficult; two of the patients were moribund and died, but in the third case, in which the patient also was desperately ill, and two injections were given, one on the right side and the other on the left, recovery took place.

When closure is multiple so that many cavities are formed, more than one special method of treatment would be required, for example, puncture and injection of ventricles as well as at the base of the brain by the sphenoidal route. The difficult task in such cases is the diagnosis. In all such cases the condition of the spinal fluid below the occlusion must be carefully determined from time to time, as reinfection from above may take place, requiring new spinal injections.

This summary of Dopter's directions for the treatment of protracted, walled-in cases of epidemic meningitis brings into the foreground the special need of examination after death of the central nervous system of such patients. By careful study of the symptoms and course of the attack followed by a thorough anatomic examination, valuable lessons will be learned in treatment.

Health of English Schoolchildren.—In its comment on the annual report for 1916 of Sir George Newman, president of the Board of Education, the *British Medical Journal* (Oct. 6, 1917), says that the war more than anything else has brought home to the public the conception of the child as a primary national asset, and quotes the president as saying that no investment and no national economy can compare in results with the care of the rising generation. According to the *British Medical Journal's* analysis of the report, "the records of 1916 show all too much ill health, disability and defect of mind and body. Uncleanliness, malnutrition and mental backwardness debar tens of thousands of children from reaping proper advantage from the educational system provided by the country. Disease takes even heavier toll of the six million children in attendance at school. Probably half the whole number need dental treatment, and not less than half a million need it urgently, while a further half million are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Another quarter of a million are seriously handicapped by diseases of the ear, throat and lymphatic glands." It is believed that the situation is no better at present; but the only hope of bettering it, according to Sir George Newman, is in systematic and continuous attention. The machinery for this is already provided, but in some instances it is insufficiently applied, or it is misapplied, or it is ineffectual on account of failure to see its importance, or owing to a sense of false economy or even parsimony. In order to secure the full value of school medical service, there should be periodic direct medical and dental supervision and follow-up; undernourishment should be overcome; medical treatment should be made available for all; well ventilated or open air classrooms should be provided; daily, organized, appropriate physical exercise should be taken; children of school age should be employed for profit only under approved conditions, and school environment and means of education should in no instance exert unfavorable or injurious influence on the health, growth and development of the child.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHLORINE-SODA AMPOULES.—Composed of a sealed glass tube stated to contain liquid chlorine (over 99 per cent. pure) 4.8 Gm. and a sealed glass tube stated to contain monohydrated sodium carbonate 21.3 Gm. and yielding, when the contents of the tubes are dissolved in 1,000 Cc. of water, a solution similar in composition to Neutral Solution of Chlorinated Soda.

To prepare the solution the contents of the tube of monohydrated sodium carbonate are placed in a bottle having a capacity of about 2,500 Cc. and dissolved in 1,000 Cc. water. The tube containing the liquid chlorine is suspended from a rubber stopper and is inserted into the bottle and the stopper firmly secured. The large bottle (after covering with a cloth) is shaken to break the chlorine tube. The contents of the bottle (without releasing the stopper) are then shaken for two minutes or longer. The solution, freed from particles of glass by decantation or filtration, is then ready for use, or its available chlorine may previously be checked by titration.

Actions, Uses and Dosage.—See Neutral Solution of Chlorinated Soda (New and Nonofficial Remedies, 1918, p. 154).

Manufactured by Johnson and Johnson, New Brunswick, N. J. U. S. patent applied for. No U. S. trademark.

The finished solution contains from 0.45 to 0.50 per cent. sodium hypochlorite. The available chlorine content is determined by titrating 10 Cc. in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium thiosulphate solution. For this titration 12.0 to 13.4 Cc. of tenth-normal sodium thiosulphate solution are required.

To determine if the solution contains an excess of alkali a small quantity of phenolphthalein is mixed by rotation with some of the solution contained in a beaker. No red color should be produced.

CHLORIN-SODA AMPOULES

Report of the Council on Pharmacy and Chemistry

The report of the Association's Chemical Laboratory which appears below was submitted to the Council by a referee. The Council endorsed the report and authorized its publication. The Council also voted to accept Chlorin-soda Ampoules for New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

THE EXAMINATION OF CHLORIN-SODA AMPOULES

Report of the A. M. A. Chemical Laboratory

H. D. Dakin, in conjunction with A. Carrel and M. Daufresne, has introduced the so-called "Neutral Solution of Chlorinated Soda," or "Dakin's Solution," different standards and modes of preparation having been described. It is essentially a solution containing from 0.45 to 0.50 per cent. sodium hypochlorite, in a hypertonic solution of sodium chlorid and sodium carbonate and sodium bicarbonate. To prepare the solution, as they describe, requires that the available chlorin content of the chlorinated lime used be known, and that the available chlorin content of the finished solution be checked by titration. To obviate this, various preparations have been placed on the market, claiming to yield, when made according to direction, a solution having the correct strength of hypochlorite and to be "neutral" to phenolphthalein.

Johnson and Johnson offer "Chlorin-soda Ampoules" composed of (A), a sealed glass tube stated to contain 4.8 gm. liquid chlorin having a purity of "approximately over 99 per cent.," and (B), a sealed glass tube stated to contain 21.3 gm. monohydrated sodium carbonate U. S. P. The contents of "B" are placed in a 2.5 liter bottle, and dissolved in 1 liter of water. Tube "A," containing the liquid chlorin, is suspended from the inserted rubber stopper. The large bottle is then vigorously shaken, breaking the chlorin ampule.

Some of the claims made for the product are:

"The Johnson and Johnson method in a few seconds gives the Carrel-Dakin antiseptic solution of standard strength of between 0.45 per cent. and 0.50 per cent. of sodium hypochlorite, free from caustic alkali.

"All settling, decantation and filtering to eliminate lime sludge is avoided; the solution is exact and definite; all necessity for, and the trouble of an analytical test is obviated.

"The Carrel-Dakin solution resulting from this method is perfectly clear and ready for immediate use.

"The method is thus at once adaptable to hospital and field use, as well as to ordinary office practice."

"It is not necessary to make analysis of the solution made up from liquid chlorin by the Johnson and Johnson method, but for those who wish to check up the strength we state that it must contain between 0.45 per cent. and 0.50 per cent. sodium hypochlorite and that this is determined by titrating 10 c.c., in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium hyposulphite and that the amount of this hyposulphite solution necessary ranges between 12.0 c.c. and 13.4 c.c.

"The test for caustic alkalinity, as prescribed, consists in throwing some powdered phenolphthalein upon the surface of some of the solution in a beaker and twirling the beaker to mix it. No red color should be produced."

One original package containing three ampules each of chlorin and of "Soda Salts" was sent to the Council by Johnson and Johnson, and another original package was purchased on the open market.

The liquid chlorin was brown, and was contained in colorless hard glass ampules about 7 inches long and ⅝ inch in diameter. The following quantitative determinations were made:

Chlorin Ampule.—The chlorin was allowed to escape from one tube by opening the pointed end, with due precautions, by heating. The loss in weight of the ampule was 4.600 gm. chlorin. A very small yellow residue remained in the tube.

Sodium Carbonate Ampules.—The weight of the contents of four "soda" ampules was 21.7, 21.5, 21.6 and 21.5 gm., respectively; average, 21.5 gm.

By titration (*a*) 2.6336 gm. required 41.60 c.c. normal hydrochloric acid solution, equivalent to 97.98 per cent. monohydrated sodium carbonate; (*b*) 2.2295 gm. required 35.90 c.c. normal hydrochloric acid solution, equivalent to 99.70 per cent. monohydrated sodium carbonate; average, 98.9 per cent.

Sodium Hypochlorite Solution.—The directions given by Johnson and Johnson were followed in preparing the hypochlorite solutions. The titrations were also carried out according to the method described by Johnson and Johnson (essentially the U. S. P. assay method for Solution of Chlorinated Soda).

(A) The chlorin tube broke near the middle, developing pressure, and some chlorin escaped: (*a*) 10 c.c. of the solution required 9.88 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite; (*b*) 10 c.c. of the solution required 9.88 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite.

(B) In preparing this sample, the chlorin tube also broke above the level of the water. As the stopper of the bottle was wired down no chlorin could escape at once. Yet when the stopper was taken out, after the bottle had been shaken for about one minute, the strong smell denoted that some uncombined chlorin had escaped: (*a*) 10 c.c. required 10.35 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite; (*b*) 10 c.c. required 10.16 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite.

(C) In preparing this sample, the chlorin tube broke near the lower end. After shaking the contents two minutes, no free chlorin escaped, when the stopper was released: (*a*) 10 c.c. of the solution required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite; (*b*) 10 c.c. required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite.

(D) The procedure was the same as C and no chlorin escaped: (*a*) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (*b*) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(E) The solution was prepared as above, and after shaking from one and one-half to two minutes, the stopper was released when chlorin escaped: (*a*) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (*b*) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(F) This tube could not be broken when vigorously shaken inside of the large bottle. It was therefore removed, cleaned and dried, and the chlorin content determined as described above.

Stability of Solution after Forty-Eight Hours.—Solutions D and E were allowed to remain near a window on dark days for forty-eight hours. In solution D the strength of sodium hypochlorite was 0.46 per cent. In solution E there was no perceptible decrease.

Phenolphthalein Test.—All of the solutions gave no color with powdered phenolphthalein, as described by Dakin, although they did color an alcoholic phenolphthalein solution momentarily before it was destroyed.

DISCUSSION

If loss of chlorin is guarded against, Johnson and Johnson Chlorin-soda Ampoules will give a solution of the strength described by them. To insure this, the stopper should be wired down or otherwise secured firmly and the bottle shaken for at least two minutes after the chlorin ampule has been broken. As the chlorin is under considerable pressure, the ampules when broken, especially if the sealed end is short, are often greatly shattered so that due precaution should be taken to filter off the glass particles. The chlorin tubes would break easier, more surely and with less shattering of glass and less pressure, if the sealed end was either more uniformly drawn out to a longer and somewhat smaller point, or so modified that the breaking would occur at the narrow tip. (With regard to this, Johnson and Johnson write that precautions have been taken to draw out the point of the chlorin tube longer and finer, so that no trouble, on this account, will occur in the future.) As Johnson and Johnson state that the chlorin contained in the ampules has a purity of over 99 per cent., it would be a valuable contribution if they would publish purity tests for the chlorin.

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SATURDAY, JULY 6, 1918

THE EFFECTS OF REDUCED OXIDATION

Forty years have elapsed since Paul Bert, in 1878, offered the first proof that the symptoms and dangers of low barometric pressure depend on diminished oxygen pressure, and consequent insufficient oxygen content in the blood. There are other conditions than barometric pressure, however, that also affect the capacity of the living cells to carry out their customary processes of oxidation. Local circulatory alterations may enhance or retard the usual respiratory exchanges in the tissues in such a way as to bring about more or less profound alterations in the temporary make-up of the cells. Impairment of oxidation, therefore, is not always directly attributable to actual oxygen deficiency in the larger environment of the organism.

In the majority of cases in which the effects of oxygen want have been studied, the symptoms investigated were those associated with grosser physiologic processes. The finer analysis that observes the enforced changes within the living cells has less often been the way of research. The interpretation of the results of cellular changes is always particularly difficult because of the many factors at play. Cells not only require oxygen and food, but also produce carbon dioxid and other decomposition products. Cause and effect in the momentary status of the protoplasm may thus easily become the subject of debate.

Recently undertaken experiments by Martin, Loevenhart and Bunting[1] at the University of Wisconsin were planned to ascertain the morphologic changes in the tissues when a single factor in the chemical environment was changed. In some cases a decrease in the oxygen of the respired air was made the sole factor of change; in others the oxygen was kept constant while the carbon dioxid respired was greatly increased. The investigators assumed, to quote their own words, that they were dealing with results, direct or indirect, in one case of a reduced oxygen supply to the cells of the body, and in the other of an increased carbon dioxid content of the fluids and tissues of the body. The assumption, however, that the morphologic changes found could be produced in no other way is not made. Death of a cell may, for example, be produced by anemia or by bacterial toxins. A finer analysis might, however, show that in both instances a reduction of vital oxidation was the cause of the lesion; on the one hand through oxygen starvation, on the other through failure to utilize oxygen by interference with the cellular oxidases by the toxin.

In interpreting the lesions found in the Wisconsin experiments, it must be borne in mind that there was a consequent lessened intake of food and increased cardiorespiratory activity when the atmospheric conditions were varied in the way indicated. The compensatory efforts by the cardiorespiratory and hemopoietic systems were not adequate to meet the severe demand made by the lowered intake of oxygen in these trials. The outcome of the series, from the morphologic standpoint, after exposure to an atmosphere of low oxygen content, indicated a stimulation of the cardiorespiratory systems, an extension (hyperplasia) of red bone marrow, and probably a thyroid hyperplasia with the further production of hydropic and hyaline degeneration in the cells of the parenchymatous organs. An atmosphere of high carbon dioxid and normal oxygen content produces, however, a stimulation of the cardiorespiratory systems, but no marrow extension and, in the concentrations used, only slight hydropic degeneration in the parenchyma of the glandular organs. The results can be expressed in another way. The oxygen deficiency series gave evidence of lesions of two types, those of a progressive or hyperplastic variety, and those of a retrogressive or degenerative character, while in the carbon dioxid series, degenerative lesions alone were noted.

Martin, Loevenhart and Bunting point out a further interesting contrast in the location of the degenerative lesions within certain of the affected organs. Thus, in the oxygen deficiency experiments the lesion increases in intensity with increasing distance from the arterial blood supply. On the other hand, in the carbon dioxid experiments the lesions are in general more marked the nearer the tissues are to the arterial supply.

The hyperplasia of the bone marrow, that is, the extension of the red marrow throughout the cavities of the long bones, is not a new illustration of the adaptive response of the organism to oxygen deficiency.[2] Evidently the proliferation in these cells was not sufficient to compensate for the low content of oxygen available to the animals, so that degenerative processes nevertheless ensued. The opinion is advanced that oxygen deficiency should at least receive consideration as a cause, in the interpretation of lesions similar to those found under the conditions of the experiments cited. In explanation of the actual cellular changes

1. Martin, H. G.; Loevenhart, A. S., and Bunting, C. H.: The Morphological Changes in the Tissues of the Rabbit as a Result of Reduced Oxidation, Jour. Exper. Med., 1918, **27**, 399.

2. Dallwig, H. C.; Kolls, A. C., and Loevenhart, A. S.: Am. Jour. Physiol., 1915-1916, **39**, 77.

observed — an increase in cell size, with an increase of its fluid content and apparently a decrease in the protoplasm resulting in so-called hydropic degeneration, vacuolar degeneration, or serous imbibition — various suggestions present themselves. The accumulation of incompletely oxidized constituents of an acid character presents the possibility, often proposed, that water may be more easily retained and lead to localized edema. This is the swelling of cells so often emphasized by Fischer and others.

The theoretical aspects of the phenomena are not yet entirely clear; but in the interpretation of cellular lesions such as those here described, the factor of reduced oxidation must hereafter always be taken into account. Furthermore, the existence of thyroid hyperplasia in animals subjected to oxygen want is urged in favor of the theory that the thyroid influences internal oxidations. It is pointed out that vigorous thyroid activity increases oxidative metabolism in the body, and that after thyroidectomy degenerative changes have been noted widespread in parenchymatous organs. Thus, new observations may lead a long way.

THE RESISTANCE OF ANTINEURITIC VITAMINS TO ALKALIS AND HEAT

Among the current statements regarding the alleged instability of vitamins toward heat, some are apparently based on experiences gained by heating food substances under conditions of alkaline reaction. Thus it has been announced that bread containing baking soda loses its antineuritic properties during baking.[1] It has also been reported that extracts of rice polishings, which possess marked curative powers when administered to polyneuritic animals, lose this property rapidly when the extracts are made alkaline.[2] At a recent meeting of the American Society for Pharmacology and Experimental Therapeutics held in Minneapolis, Voegtlin and Lake[3] of the Hygienic Laboratory at Washington reported that typical polyneuritis can be produced with great regularity in certain mammals by an exclusive diet of lean beef that has been heated in alkaline reaction for three hours in an autoclave at 120 C. The symptoms evidently associated with typical myelin degeneration of certain peripheral nerves are relieved promptly by preparations of yeast, but not by administration of a protein like casein or by butter fat; hence the conclusion that the detrimental effect of the diet is associated with a lack of antineuritic vitamin rather than the need of the fat-soluble vitamin that facilitates growth, or of suitable undeteriorated protein.

Equally recent experiments of Osborne and Mendel[4] have shown that even unaltered meat (muscle tissue) is at best not very rich in the water-soluble vitamin, just as Cooper[5] had earlier found meat to be relatively inefficient as an antineuritic food. From this standpoint, the study of heating meat is not likely to throw light on possible loss of vitamins by heat as other investigations of foods naturally richer in vitamins might be. Accordingly, it is interesting to learn from a recent report by McCollum[6] at a meeting of the American Public Health Association that such sources of water-soluble vitamin as peas do not lose their growth-promoting properties by being heated in an autoclave at 15 pounds pressure for an hour. This procedure subjects the food to a temperature of between 112 and 115 C., and is probably a more severe heat treatment than is ever employed in the processing of canned goods.

Such information is timely before the advent of the next canning season. McCollum maintains that when cereals, fruits or vegetables are cooked with water, the reaction of the solution in contact with the food is probably never alkaline. Presumably, as he concludes, the physiologically active substance concerned with the prevention and relief of polyneuritis is sufficiently stable in either neutral or slightly acid aqueous solutions to make its destruction by heat a relatively slow process.

THE PATHOLOGY OF MERCURY POISONING

Intoxications produced by compounds of mercury either are acute in character with a rapid sequence of symptoms that are frequently, if not usually, fatal; or the outcome may be exhibited in considerably delayed manifestations of severe disease. The kidneys have usually received most attention in mercury poisoning because at some stage of the intoxication they are likely to show signs of abnormality in performance. Recently reported studies by MacNider[7] of the University of North Carolina at Chapel Hill throw new light on the acute pathologic condition induced by mercuric chlorid. A number of the animals that died from the intoxication within forty-eight hours after receiving the poison showed a clinical condition comparable with the state of shock and collapse that is observed in man from the use of a concentrated corrosive poison. Although all the subjects receiving mercury developed a gastro-enteritis, this varied widely in severity and duration, depending on conditions of administration and the onset of vomiting. In the group just referred to, however, the gastro-enteritis was always intense, so that necropsy disclosed the

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2. Vedder, E. B., and Williams, R. R.: Philippine Jour. Sc., 1913, **8**, 175. Funk, C.: Biochem. Bull., 1915, **4**, 306. Voegtlin, C., and Sullivan, M. X.: Jour. Biol. Chem., 1916, **24**, 16.
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4. Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, Jour. Biol. Chem., 1917, **32**, 309.
5. Cooper, E. A.: Jour. Hyg., 1912, **12**, 436; 1914, **14**, 12.
6. McCollum, E. V.: Influence of Heat on Growth-Promoting Properties of Food, Am. Jour. Pub. Health, 1918, **8**, 191.
7. MacNider, W. deB.: A Study of Acute Mercuric Chloride Intoxications in the Dog with Special Reference to the Kidney Injury, Jour. Exper. Med., 1918, **27**, 519.

usual picture of an alimentary mucous membrane subjected to a strong corrosive. There seems little doubt that in individuals succumbing in this way, death occurs before sufficient time has elapsed for the development of the kidney injury. Sometimes a decided reduction in kidney output is observed even in these acutely fatal cases. The diminution, MacNider believes, is probably dependent on a disturbance in the functional capacity of the vascular mechanism of the kidney induced by the deflection of arterial blood away from the kidney to the splanchnic viscera. The absence of degenerative changes in the kidney and the presence of an intense congestion of the splanchnic vessels would apparently permit this deduction from the phenomena observed.

Not all poisoned individuals escape acute nephropathy by dying before kidney damage results. When the severe mercury enteritis is averted or survived without death by shock, the delayed kidney injury so long regarded as characteristic puts in its appearance. The renal disintegration may occur with varying severity; it may even be delayed until there is recovery from the initial mercury enteritis. According to MacNider, however, this delayed kidney injury is not due to the action of mercury as such during its elimination by this organ. He points to the development of an acid intoxication as a conspicuous symptom of the action of mercuric chlorid. When it is severe, the animals may even become completely anuric. In this form of the delayed intoxication is found the severe type of kidney injury that has been characterized by an acute swelling and necrosis of the renal epithelium. All these animals have either gradually or acutely developed a severe type of acid intoxication. There has been a definite association between the development of an acid intoxication and the delayed kidney injury, and, furthermore, the animals that have shown the greatest swelling and necrosis of the renal epithelium have also shown the severest type of intoxication.

MacNider[8] has reported that in acute uranium intoxications the severity of the epithelial damage in the kidneys shows a correlation with the degree of acid intoxication induced by the metal, and, furthermore, that the damage to the kidney may in large measure be prevented by the intravenous injection of an alkaline solution. Our confidence in the prospect of curative procedures has, however, been severely shaken by the studies of Sansum[9] reported not long ago in THE JOURNAL. According to their indications, when once a fatal dose of mercury compounds is actually absorbed, therapeutic attempts are of no avail. Alleged successes are ascribed to their accidental efficiency in producing an expulsion of the poison or preventing its absorption.

8. MacNider, W. deB.: The Inhibition of the Toxicity of Uranium Nitrate by Sodium Carbonate, and the Protection of the Kidney Acutely Nephropathic from Uranium from the Toxic Action of an Anesthetic by Sodium Carbonate, Jour. Exper. Med., 1916, **23**, 171; The Efficiency of Various Diuretics in the Acutely Nephropathic Kidney, Protected and Unprotected by Sodium Carbonate, ibid., 1917, **24**, 19.

9. Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, THE JOURNAL A. M. A., March 23, 1918, p. 824.

MEDICAL EDUCATION IN ONTARIO

In dealing with practitioners of medical cults, the Province of Ontario has set an example which should be followed by the legislatures of the various states of this country. When the osteopaths began to clamor for legal recognition, instead of immediately granting the legislation asked for, the prime minister of Ontario appointed a special commission to make a thorough investigation in regard to the osteopaths and other cults; to inquire regarding their relation to medical education and licensure, and to suggest what action should be taken in regard to educational standards and laws for their regulation. Mr. Justice Frank E. Hodgins of the supreme court of Ontario was appointed in September, 1915, to make the investigation, and his report has just recently come from the press.

In this report Mr. Justice Hodgins states that he visited fourteen different cities of Canada and the United States and eighteen different institutions; he interviewed 234 people, and besides an abundance of direct communication, collected nearly 200 pamphlets bearing on all phases of the problem. The investigation went thoroughly into the origin, progress and practice of osteopathy, chiropractic, manotherapy, Christian science and other forms of healing, as well as of medical education, dentistry and nursing.

The report states that osteopathy in the United States is rapidly changing so that it may eventually conform to the educational qualifications required of physicians, and that it would not be wise for Ontario to make any concessions in its practice laws to provide for their licensure in that province. The report quotes several prominent osteopaths to show that osteopaths generally are no longer adhering to the narrow limitations fixed by the tenets of osteopathy, but are "anxious for classification on practically the same standard as that of regular physicians."

Of the chiropractic colleges, the report clearly brings out their grossly commercial character and, in regard to chiropractors, the commissioner states that "their repudiation of all modern scientific knowledge and methods is such that it would be impossible to recommend any way in which they could be allowed to practice and by which the public could be safeguarded. . . . Those who appeared before me saw no necessity for preparatory qualifications, ridiculed and repudiated diagnosis, bacteriology and chemistry, and admitted that a chiropractor acts in all cases on his cardinal principle without examination." He showed that there was a serious division in the ranks of chiropractors as to just what constituted the practice of chiropractic. The report quotes B. J. Palmer,

who refers to his school as "the fountain head of chiropractic," as stating that "a chiropractor did not believe in bacteria and that bacteriology was the greatest of all gigantic farces ever invented for ignorance and incompetency, and as to analysis of blood and urine, he considered it of no value." The commissioner's conclusion is: "I cannot bring myself to the point of accepting, as part of our legalized medical provision for the sick, a system which denies the need of diagnosis, refers 95 per cent. of disease to one and the same cause, and turns its back resolutely on all modern medical scientific methods as being founded on nothing and unworthy even to be discussed."

In regard to Christian scientists, the report states: "Their rights should be carefully restricted to the bona fide exercise of the tenets of their religion, and they should possess no other or different right or immunity from that enjoyed by the clergyman or minister who is called in for the spiritual benefit of a member of his communion and whose ministrations often react beneficially on physical suffering." As to their relation to public health regulations, the report states: "Whether they see the patient or not, or whether they merely pray for him, if their efforts or doctrine really and in practice result in eliminating the regular practitioner, either because the patient desires it or because his friends do so, then the interests of public health throw on them the responsibility for any possible mistake in the nature of the disease. They should, therefore, conform to present or future health regulations and should, where they act for gain, be required to possess sufficient medical knowledge to recognize diseases pronounced by the health authorities to be communicable." Special safeguards in regard to contagious and infectious diseases are advocated in that "a penalty of fine or imprisonment, or both, sufficiently heavy to deter people from incurring it, should be imposed on any one practicing such religious tenets on or in reference to any person suffering from any disease dealt with as contagious or infectious in the Public Health Act, unless before such practice is begun notice in writing is given to the local health authorities of the presence of such disease." The report states that in the Province of Ontario the courts have already decided that those permitting the exercise of Christian science in respect to children, instead of providing tried medical assistance, are guilty of an offense against the Criminal Code. While the commissioner concedes that in certain types of mental errors which produce morbid conditions, or where the psychic effort of faith and hope is really helpful, Christian science may be a useful method of treatment; on the other hand, "its substitution for different and usual medical and surgical methods results in downright harm." The commissioner suggests that where practitioners of Christian science "come in contact with disease it seems hardly fair or reasonable . . . that there should not be required a sufficient knowledge of elementary medicine or of health and disease to prevent contagious and infectious diseases being unrecognized," and that "to insist on this knowledge would not take away the right of the individual to trust himself to the efficacy of the treatment, absent or present, which depends in large measure on the mental and spiritual. . . . Success in this practice may well depend on spiritual qualifications, but does not exclude the operation of common sense, based on knowledge, in discerning the disease from which the patient may be suffering. Either the Christian science practitioner must possess that information, or it must be supplied by some one else." The report concludes: "To allow attendance upon disease without any precaution against the effects of wrong diagnosis, or without sufficient education to discern whether the method proposed is properly applicable, is to put a premium on ignorance."

This report is of extreme importance and is worthy of careful study. It was made by a representative of the Provincial Government of Ontario, duly appointed for that purpose; it was made by one of the leading justices of Canada and, therefore, by a well qualified as well as a disinterested and unbiased investigator; it was clearly a thorough investigation of the medical cults in their relation to medical education, medical licensure and the public welfare, and its arguments are clear, logical and conclusive. The report will do much to rid the public of the bands of organized quackery represented by the various medical cults.

Current Comment

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

One of the most practical series of meetings at the last annual session of the American Medical Association was that on physical examinations of registrants. The first instalment of the report of these meetings appears in this issue of THE JOURNAL. The account should be, and we have no doubt will prove to be, of great interest to every one of the 25,000 physicians directly connected with the work, either as members of the local, of the district appeal, or of the medical advisory boards. They should also be of interest to the camp surgeons to whom the men examined and passed by these boards are sent for final decision as to their physical fitness for military service. Most important, as pointed out by Dr. James B. Herrick, is the necessity of considering every man, not only from the standpoint of the specialist, but also wholly from the point of view as to whether or not he is of the type to make a good soldier. The address of Colonel Billings, as medical aide of the Provost-Marshal, traced the development of the various standards of physical examination which have guided physicians

in this work; Mr. Graham Taylor brought out the civilian's point of view; and Col. James Phelan of Camp Grant, the difficulties which the camp surgeon encounters when he makes the final decision on the material sent to him by the selective service boards. Finally, Lieut.-Col. J. S. Easby-Smith, representing Provost Marshal-General Crowder, outlined in systematic manner the method of operation of the selective service law, the development of the regulations and the application of the regulations to individual cases. He brought to those present the thanks of the Provost-Marshal for the invaluable work of the medical profession which, as much as any other thing, has made the National Army possible. In next week's issue will appear numerous questions asked Colonel Easby-Smith by those in attendance, together with the lucid explanations and answers which he gave to the questions. These will aid many local, district appeal and advisory boards in making a decision which heretofore must have been made with considerable doubt and hesitancy. The review of these meetings indicates beyond question that in their scope, in their service and in their benefit to the country they were the most valuable feature of the scientific assembly.

MEDICAL SUPERVISION FOR INDUSTRIAL WORKERS

In pleading for the assurance of the efficiency and welfare of the girls and women who are entering on men's occupations as an inevitable consequence of the world war, Josephine Goldmark[1] of the National Consumers' League has emphasized three safeguards, namely, equal wages, additional legislation, and adequate medical supervision. With the rapidly increasing demand for physicians in connection with the enormous expansion of the Army and Navy, it might seem as if a call for greater medical effort among the civilian population were an ill timed if not ill advised scheme. We need to keep in mind, however, that the nation's great industrial army also must be maintained in a high degree of physical competence if the supreme effort is to be most successfully carried out. With the experience of the allied nations to guide us, America cannot afford to overlook this important feature. Competent medical supervision may do even more than facilitate the nation's self-preservation. Industrial clinics and all forms of medical supervision are inevitably agencies for public enlightenment in matters of hygiene. Moreover, they strike a blow at the insidious inroads of quackery and nostrum venders. Dr. Beatrice Webb, whose work for the Health of Munition Workers' Committee of the British Ministry of Munitions has given her unusual opportunities to become familiar with the life and health of the thousands of women and girls brought into the factories, has indicated some of the current tendencies. A widely spread and highly dangerous habit, she writes,[2] has arisen and is rapidly growing, of taking medicines, recommended by advertisement, by friends, or prescribed by physicians in bondage to the custom of seeing large numbers of patients in a short space of time. The spread of the habit of self-medication is attributed in part to the migration from rural to urban districts, where conditions are less favorable for right living. Dr. Webb points out, furthermore, that the ubiquitous advertisement of "patent medicines" cannot be without consequence. This can only be met by a counter campaign of education and, we believe, by the provision of suitable medical advisory opportunities. This is not synonymous with the prescription of drugs; rather, it means the establishment of suitable agencies which shall proclaim and teach right rules of living and help to correct remediable defects in accordance with modern medicine. When Voltaire described a physician as "a man who puts drugs of which he knows little into bodies of which he knows less," he doubtless delivered a reproach that was in part deserved. A prominent duty of the medical profession today should be to try to keep people well and to raise the general level of health. This brings us back to the original proposition: equal wages, additional legislation, and adequate medical supervision for the industrial workers.

1. Goldmark, Josephine: Some Considerations Affecting the Replacement of Men by Women Workers, Am. Jour. Pub. Health, 1918, **8**, 270.
2. Webb, Beatrice: Health of Working Girls, London, 1917.

SOME EFFECTS OF AIR, LIGHT AND MOISTURE ON FOODS

It is commonly recognized that physical agencies such as enter into the environment of man may have an effect on the stability of foods. Heat, air, light and moisture have been held responsible for various sorts of deterioration or spoiling. This is true, in particular, in the case of edible oils. That they should undergo such changes is not strange when the behavior of the so-called drying oils used in the industries is taken into consideration. The changes which the latter undergo are incident to the absorption of oxygen whereby some of the constituents are converted from liquid to semisolid or hard products. The details of the changes in the stability of an edible fat—olive oil—have been ascertained in the course of prolonged observations at the Massachusetts Agricultural Experiment Station.[1] They have served to differentiate, in part, the effects of the individual possible factors. Thus it was found that light causes an active destruction of color and a slow production of rancidity. Air and light together cause the most active and effective destruction of color, active destruction of unsaturated acids, a rapid production of rancidity, and a slow but marked production of free fatty acids. Moisture caused the production of a precipitate, a turbid oil, and free fatty acids. It is evident, therefore that in order to preserve olive oils in their natural state, air, light and moisture should be excluded as completely as possible, particularly the combined action of air and light, which has proved exceedingly destructive. Such are the slow and subtle effects of unsuspected forces about us. Little wonder, then, if our crude drugs also deteriorate under similar circumstances from time to time.

1. Holland, E. B.; Reed, J. C., and Buckley, J. P.: Stability of Olive Oil, Jour. Agricultural Research, 1918, **13**, 353.

Medical Mobilization and the War

Field Medical Supply Depot of Army Desires to Purchase Rotary Microtomes

The Field Medical Supply Depot of the Army is in great need of rotary microtomes for use in making pathologic examinations of lung tissue in differentiating bronchopneumonia from lobar pneumonia at the various camps. Great difficulty has been encountered in obtaining these instruments since a number of the firms which formerly supplied them are now employed in manufacturing Signal Corps and ordnance material. The Medical Department therefore requests any one having a microtome to dispose of to communicate with Lieut.-Col. M. A. Reasoner, M. C., N. A., Field Medical Supply Depot, U. S. Army, 21 M Street N.E., Washington, D. C. It is desired to purchase the microtomes since the safe return of any lent to the department could not be vouched for.

Personnel of the Medical Department

For the week ending June 28, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 877, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 403 lieutenants.

MEDICAL RESERVE CORPS: 20,301, including 1,464 majors, 5,641 captains and 13,196 lieutenants. On active duty: 18,298, including 1,389 majors, 5,205 captains and 11,704 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,196, including 22 lieutenant-colonels, 265 majors, 254 captains and 655 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 297, including 6 brigadier-generals, 67 colonels, 215 lieutenant-colonels, 8 majors and 1 captain.

THE DISCHARGES to date are:

Causes	Number M.R.C.	Number M.C.N.G.
Physical disability	702	54
Inaptitude	271	21
Other branches of service	573	72
Resignations	172	33
Domestic troubles	59	0
Needed by community	50	0
Deaths	88	6
Dismissals	12	4
Duty completed	1	0
No reasons given	14	0
	1942	190

MEDICAL FEATURES OF THE ARMY APPROPRIATION BILL

The Army Appropriation Bill passed the Senate, Saturday, June 29. It is now in the House with good prospects for its passage. The bill, although nominally for the purpose of providing the sum of over $12,000,000,000 for the Army expenses for the fiscal year of 1918, carried with it numerous riders, some of which are of the greatest importance to medical officers. Two we quote:

INCREASED RANK FOR MEDICAL OFFICERS

The most important amendment, perhaps, is that providing increased rank for medical officers. Elsewhere appears a quotation of the statements made in the Senate by Senators McKellar, Owen and Penrose relative to this amendment. The amendment reads:

That the Medical Department of the Regular Army be, and is hereby, increased by one Assistant Surgeon-General, who shall have the rank of Major-General, and three Assistant Surgeons-General, who shall have the rank of Brigadier-General, all of whom shall be appointed from the Medical Corps of the Regular Army.

That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve Corps of the Regular Army, not to exceed four Major-Generals and eight Brigadier-Generals for each 1,000,000 officers and enlisted men of the entire National Army.

That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law.

That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Navy.

That the President may designate as "consultants" officers of either the Medical Corps or the Medical Reserve Corps and may relieve them as the interests of the service may require: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein.

CITIZENS BORN IN GERMANY OR AUSTRIA MAY BE COMMISSIONED

Another amendment provides "That American citizens of Austrian or German birth, or who were born in alien enemy territory who have passed the necessary examination and whose loyalty is unquestioned, may in the discretion of the Commander-in-Chief of the Army and Navy, be commissioned in the United States Army or Navy.

DISEASE CONDITIONS AMONG TROOPS

Week Ending June 21, 1918

		Last Week
1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		
All Troops	963.7	987.2
Divisional Camps	1,047.0	978.0
Cantonments	980.1	1044.4
Departmental and Other Troops	905.7	930.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	39.8	38.3
Divisional Camps	40.0	35.4
Cantonments	49.9	44.6
Departmental and Other Troops	33.5	33.2
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	2.9	3.31
Divisional Camps	3.88	2.9
Cantonments	3.44	4.89
Departmental and Other Troops	1.86	1.86

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JUNE 21, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal: Total	Venereal: New Infections	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Beauregard	4	7	31	88	3	...	..	..	1	1,022.3	43.2
Bowie	6	..	3	47	36	4	..	..	2	962.7	26.9
Cody	42	..	..	10	2	20	..	1	2	466.4	25.0
Doniphan	...	..	..	8	...	...	..	1	0	1,352.0	42.0
Fremont	5	..	2	8	3	13	..	..	1	663.6	36.1
Hancock	1	..	5	23	...	2	1	..	2	999.2	39.9
Kearny	...	..	..	3	...	2	..	..	2	578.5	25.8
Logan	5	..	..	64	56	1	..	..	1	5,996.5	282.4
MacArthur	2	..	..	...	...	6	..	2	2	1,018.4	37.2
McClellan	...	..	3	25	14	...	..	..	0	744.3	40.5
Sevier	7	1	15	79	4	24	1	..	2	1,319.5	61.0
Shelby	4	..	15	29	4	2	..	..	0	1,037.4	40.1
Sheridan	...	..	3	113	...	5	..	..	0	1,679.5	63.4
Wadsworth	4	..	4	174	3	19	1	..	4	2,254.3	53.2
Wheeler	3	..	..	34	4	...	..	..	3	767.7	25.7
Custer	2	..	1	54	2	9	..	1	1	423.5	17.9
Devens	5	..	..	30	8	19	1	1	3	574.5	37.8
Dix	1	..	1	66	66	6	1	..	1	890.5	38.9
Dodge	9	..	10	87	...	8	..	..	5	1,351.5	62.3
Funston	1	..	..	14	1	2	..	1	1	621.8	53.2
Gordon	12	..	4	190	1	14	4	..	9	1,525.0	59.5
Grant	3	..	..	21	...	13	..	2	3	397.5	17.5
Jackson	3	..	..	430	...	84	2	..	3	1,471.8	57.6
J. E. Johnston	3	..	1	39	22	11	..	1	0	1,228.3	33.4
Lee	3	..	..	65	...	37	..	..	1	600.0	67.5
Lewis	24	..	1	110	3	12	..	8	5	747.8	29.3
Meade	2	..	2	28	4	7	1	..	0	804.4	31.4
Pike	10	..	42	54	1	52	..	..	5	1,007.9	77.9
Sherman	2	..	4	145	...	3	..	..	1	1,320.5	66.0
Taylor	12	..	..	49	...	20	..	..	1	1,073.6	66.6
Travis	18	2	..	17	...	13	..	..	1	2,447.2	69.8
Upton	1	1	..	125	3	3	..	..	4	655.5	38.5
Northeastern Dept.	...	..	..	37	10	5	..	..	0	647.2	24.2
Eastern Dept.	11	..	9	181	81	25	..	..	3	803.7	20.7
Southeastern Dept.	...	..	..	54	32	8	..	..	1	1,011.9	37.6
Central Dept.	1	..	1	80	25	6	1	1	1	982.6	34.5
Southern Dept.	4	..	2	126	52	16	..	3	2	780.2	30.3
Western Dept.	4	1	..	72	29	8	1	9	4	932.2	29.6
Mil. Aeronautics	9	10	3	226	...	4	..	..	14	979.4	30.8
Alcatraz, D. B.	...	..	..	...	...	...	..	..	0	309.5	8.9
Leavenworth, D. B.	...	..	..	...	...	...	..	..	0	1,199.5	34.4
Columbus Bks.	...	..	..	12	4	...	..	..	0	684.9	37.3
Jefferson Bks.	2	..	..	71	4	21	..	..	0	1,748.6	99.5
Fort Logan	...	..	..	3	...	...	..	..	0	1,366.8	70.5
Fort McDowell	...	..	..	8	5	2	..	..	1	1,413.4	86.6
Fort Slocum	...	..	..	8	...	8	..	..	1	656.7	58.8
Fort Thomas	...	..	1	8	...	8	..	..	0	1,009.4	38.8
Augusta Arsenal	...	..	..	...	...	...	..	..	0	.....	....
Edgewood Arsenal	...	..	..	1	1	...	..	..	2	586.8	52.6
Watertown Ars.	...	..	..	2	...	...	..	..	0	818.2	10.5
Springfield Arm.	...	..	..	...	...	...	..	..	0	509.8	9.8
Watervleit	...	..	..	...	...	...	..	..	0	1,607.2	37.7
Hoboken	7	1	4	232	21	10	4	3	2	927.7	42.7
Newport News	15	18	9	55	36	3	..	..	3	1,046.5	58.1
West Point	...	..	..	1	...	...	..	..	0	584.3	10.7
Fort Keogh	...	..	..	...	...	...	..	..	0	1,006.4	12.9
Greenleaf	...	1	1	25	...	6	..	2	1	956.9	53.9
War Pr. Bks. No. 1	...	..	..	...	...	...	..	..	0	1,320.6	12.7
Total	247	42	177	3,433	540	533	18	36	101	963.7	39.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending June 21, 1918	Departmental and Other Troops, Week Ending June 21, 1918	Divisional Camps, Week Ending June 21, 1918	Cantonments, Week Ending June 21, 1918	Expeditionary Forces, Week Ending June 13, 1918
Pneumonia	9.6	5.2	16.1	10.9	10.0
Dysentery	1.6	3.0	1.5	0.3	0.0
Malaria	6.9	2.9	15.7	6.5	1.2
Venereal	134.4	117.9	138.8	149.8	47.8
Paratyphoid	0.2	0.0	0.97	0.0	0.0
Typhoid	0.3	0.3	0.4	0.2	0.22
Measles	20.8	11.9	19.0	30.8	6.0
Meningitis	0.7	0.6	0.6	0.9	2.1
Scarlet fever	1.4	1.8	0.78	1.4	3.9

INCREASED RANK FOR MEDICAL OFFICERS

Remarks of United States Senators Preliminary to Passage of Amendment Granting Increased Rank

The following quotation from the *Congressional Record* gives the remarks made in the Senate preliminary to the passage of the amendment, quoted in another item, which grants increased rank to medical officers:

MR. PENROSE: Mr. President, while the bill was in the committee I had frequent occasion to confer with the Senator from Wyoming (Mr. Warren), the ranking minority member of the Military Affairs Committee, regarding legislation concerning the Medical Corps. I have not had an opportunity to examine the bill, and I should like to inquire from him what has been done in that respect.

MR. WARREN: Mr. President, the proposal to adopt for the Medical Corps of the Army the system governing the Medical Corps of the Navy was made to the Senate committee along with other suggestions, the one patterned after the naval system being the one most strongly urged. After long-continued hearings and investigation the subcommittee became satisfied, as the full committee later became satisfied, that the Medical Corps of the different branches of the Army should be divided. So far as the Regular Army is concerned, the legislation proposed simply adds one major-general and three brigadier-generals to the commissioned personnel of the Regular Army, and the remaining officers from colonels down may be increased from time to time according to the provisions of the present law and as the necessities of the case may require.

As to the National Army, the legislation provides that there may be, if the President so directs, four major-generals and eight brigadier-generals for every 1,000,000 officers and enlisted men in the service in the National Army. It provides also that the junior officers, from lieutenants up to and including colonels, may be in the same ratio as the law at present provides for the Navy.

MR. PENROSE: Mr. President, I only want to take this opportunity in passing to express my gratification that provision has been made for the several Medical Corps of the Army. It is an act of justice to a body of men whose services in modern warfare are invaluable, as is conceded everywhere. I believe that the medical profession throughout the United States will appreciate the efforts of the Senator from Tennessee (Mr. McKellar), who was chairman of the subcommittee, the Senator from Wyoming (Mr. Warren), and the other members of the Military Affairs Committee who have recommended the insertion of this provision in the bill. I sincerely hope that when the bill goes to conference the Senate conferees will insist on retaining this provision in the appropriation bill.

MR. WARREN: Mr. President, I think I ought to say, further, that we have been very liberal indeed with the Medical Corps of the National Army. We have in that corps the most distinguished surgeons and physicians of this country or perhaps of the world; and it has seemed as if we might be liberal, since during the war they are giving to the government their time and their experience, of course, at the end of the war these officers will be discharged, as are the enlisted men, except those who may be discharged in the meantime.

Now, as to the Regular Army, we ought not to interfere, and we have not in this legislation interfered, with what ought to be the rational flow of promotion in the service not only during the war but afterwards. This legislation, it is believed, will leave us at the end of the war with not too large a Medical Corps in the Regular Army, and the flow of promotions, while perhaps somewhat slower than heretofore, and of course very much slower than during the immediate past, will be normal, nevertheless.

MR. MCKELLAR: Mr. President, I wish to say in reference to this amendment rearranging the Medical Corps, and especially providing for the Medical Reserve Corps of the Army, that a good deal of labor has been devoted to this matter by the subcommittee and by the full committee. There are more than 20,000 doctors throughout this country who have volunteered to come into the service of the United States at this time. Doctors with large and remunerative practices have freely volunteered at, of course, very small pay in comparison with what they have heretofore made. No class of our citizens, I believe, have made greater sacrifices for the country than these gentlemen have voluntarily made. They have come forward with singular celerity, and have been most active in the performance of their duties and in preparing themselves for the duties that are before them. The best interests of our soldiers demand this legislation. It will give our Medical Corps such a position that it can enforce its reasonable rules to maintain the health of the Army and to restore the maimed and wounded. There was practically no legislation or very little legislation in regard to their service, and their commissions were limited for the most part to the rank of major and lesser grades.

There is no question that they are entitled to this legislation. So far as the general officers are concerned, they have even under this bill less representation than any other branch of the Army. I believe that, on the whole, this bill is satisfactory to them. I hope so, at any rate, because I believe, as I have said, that no class of our Army is more deserving of fair treatment than the officers of the Medical Reserve Corps who have come into the service of the United States. Some of the most noted physicians and surgeons of our land have not only come in recently, but have been in from the very beginning and are doing splendid work. It is a work that ought to be recognized by our country. This is the best that the committee could do; we believe that it is a proper provision and that it ought to be enacted into law.

We have taken much testimony and given much time and consideration to this measure. Senator Warren, Senator New, and myself feel that we have taken every precaution to subserve the best interests of our soldiers in framing the measure. Substantially we have followed the provisions of Senator Owen's bill, and we are informed that the provisions of this bill as amended and reported on this subject are entirely satisfactory to the entire medical profession. It is the first time in the history of our government when the medical fraternity has been recognized in a manner in keeping with the high purposes and the splendid efficiency of this noble profession.

MR. OWEN: Mr. President, I am gratified that the committee was able finally to agree upon such a provision as to give a substantial recognition both to the Medical Corps of the National Army and to the Medical Corps of the Regular Army. I have heretofore pointed out to the Senate the very great difference which prevailed between the American organization and the European organization. In Great Britain they have given very much more important recognition to the officers in the Medical Department, and the same thing is true with regard to France, Italy, Japan and Austria. The reason why they have given a greater dignity to these offices is because of the fact that the saving of human life is involved; that is the purpose of it and not merely to give dignity to worthy men.

While the amendment reported by the committee does not provide anything like as large a number relatively of higher ranking officers as the British, the French, the Italians, the Austrians, and the Germans have, still I believe it will be a very useful improvement, and I am glad to welcome it.

MR. PENROSE: Mr. President, I only want to say in conclusion and in passing that the provisions of this bill will at least lay the foundation for future legislation which may be required in the time to come. I agree with what the Senator from Tennessee (Mr. McKellar) has said. I do not think there is any element of our citizens who have made greater sacrifices than the members of the medical profession. A business man can come to Washington and devote all his time to the duties of some volunteer board and his business goes on, perhaps, under the management of those whom he leaves at home and his income is not curtailed, but the surgeon or physician who comes to Washington to serve on a volunteer board or to take a commission in very many cases sacrifices a very large professional income made by his own personal efforts, and when those efforts cease his income ceases. Therefore the sacrifice is all the greater.

I do not think, however, it is the money consideration which prompts this legislation; it is distinctly in the interest of greater efficiency in the several medical corps of the different branches of the Army. I know that in Pennsylvania—and the observation would apply, I take it, to any other state in the Union, but, of course, I am more familiar with my own state—the leading surgeons of Philadelphia and of Pittsburgh and throughout the state have contributed their services from a pure spirit of patriotism, and at almost a complete sacrifice of personal income and emolument. I know that this legislation will be commended throughout the country, and if it needs amplifying in the next appropriation bill I sincerely hope the Military Affairs Committee will see their way clear to build upon the foundation laid here today.

MR. MCKELLAR: Mr. President, if anything that I said suggested to my distinguished friend that our first purpose was not to secure greater efficiency in the Medical Corps of the Army, then I did not express myself as carefully as I should, because, of course, that was the primary purpose of the committee in dealing with this matter.

I want also to add, Mr. President, that the Medical Corps of the Regular Army has done splendid work, as our committee has found out, and they are entitled to very great credit for the manner in which they have organized the entire medical forces of our Army. I do not think any branch of our service has shown greater efficiency in preparing for its part in this great conflict, and I want to congratulate this department on its splendid work up to date, and to express the belief that the Medical Corps of both Regular and Reserve Establishments will make historic records in this conflict.

MR. PENROSE: Mr. President, I hope the Senator from Tennessee will not misunderstand me. I did not in the remotest way mean to suggest that he had intimated any consideration, except that of the loftiest patriotism, and I want to say here that if it had not been for him and his colleagues on the subcommittee, supported by the Senator from Oklahoma, who introduced one of the original bills, this legislation might have failed for lack of attention in the multitude of other matters pressing upon the consideration of Congress and the committees of Congress at the present time.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., as assistant to camp surgeon, from Camp Logan, Major HENRY P. CARTER.

To Camp Bowie, Fort Worth, Texas, as camp surgeon, from Southern Department, Major JOHN C. INGOLD.

To Camp Dix, Wrightstown, N. J., *Mineola* and *Camp Upton, L. I., Otisville, Fort Ontario,* and *Fort Porter, N. Y.,* and *Camp Perry, Ohio,* to make sanitary inspections and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

To Camp Gordon, Atlanta, Ga., as assistant to camp surgeon, from Walter Reed General Hospital, Major FREDERICK H. PETTERS.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Vancouver Barracks, Major CHARLES R. CASTLEN.

To Camp Lewis, American Lake, Washington, as camp surgeon, from Hawaii, Lieut.-Col. HERBERT C. GIBNER.

To Camp Logan, Houston, Texas, as camp surgeon, from Camp Bowie, Major JOHN A. BURKET.

To Cape May, N. J., for duty, and on completion *to his proper station,* Lieut.-Col. EDWIN C. ELLETT.

To Edgewood Arsenal, Bound Brook, N. J., for duty, and on completion *to his proper station,* Col. WILLIAM J. L. LYSTER.

To Gettysburg, Pa., for conference and on completion *to their proper stations,* Cols. PEARCE BAILEY, WARFIELD T. LONGCOPE, Lieut.-Col. NELSON M. BLACK.

To Hoboken, N. J., for sanitary inspection and on completion *to his proper station,* Col. ALBERT E. TRUBY.

To Mineola, L. I., N. Y., for duty, and on completion *to his proper station,* Col. THEODORE C. LYSTER.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES H. BURNS.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Meade, Annapolis Junction, Md., for duty, from Camp McClellan, Lieut. W. THEO. LANGLEY, Camp Hill.

To Camp Wadsworth, Spartanburg, S. C., for duty, Capt. LOCHLIN M. WINN, Birmingham.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOHN C. BRAGG, Birmingham.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. ALTO L. KELLY, STERLING C. WOOD, Birmingham.

To Cape May, N. J., base hospital, Lieut. HARVEY B. SEARCY, Tuscaloosa; from Camp Beauregard, Lieut. RUFUS JACKSON, Birmingham.

To Fort McPherson, Ga., for duty, Lieut. EMMITT C. SINIARD, Birmingham.

To Fort Oglethorpe for instruction, Capt. JOHN McP. LOWREY, Birmingham.

To report to the comanding officer, Southern Department, for duty, from Camp Travis, Major JAMES H. AGNEW, Mobile.

Arkansas

To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. HENRY W. A. LEE, North Helena.

California

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. DOLOS P. THURBER, San Francisco.

To Camp Custer, Battle Creek, Mich., base hospital, Major PERCIVAL G. WHITE, Los Angeles.

To Camp Dix, Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.

To Camp Dodge, Des Moines, Ia., base hospital, Capt. VARD H. HULEN, San Francisco.

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, from Fort Riley, Capt. JAMES R. REED, Pasadena.

To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. RICHARD R. RONAN, Los Angeles.

To Camp Kearney, Linda Vista, Calif., as a member of the tuberculosis examining board, Capt. WILLIAM BARNHART, Los Angeles.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. WILLIAM T. ROTHWELL, Los Angeles. For duty, Capt. EDWARD VON ADELUNG, Oakland; Lieut. LAURENCE L. LINDSEY, Owensmouth; from Fort Riley, Lieut. BARTHOLOMEW GATTUCCIO, Davenport.

To San Francisco, Calif., Letterman General Hospital, for instruction, Lieut. JOHN SWANSCOTT, Los Angeles.

The following order has been revoked: *To Camp Dix,* Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.

Canal Zone

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. HARRY D. EBERSOLE, Cristobal.

To report to the Governor of the Panama Canal, C. Z., for duty, Capt. FRAZER F. MONROE, Ancon; Lieut. WILLIAM V. LEVY, Cristobal.

Colorado

To Army Medical School for duty, Lieut. OMER H. GILLETT, Colorado Springs.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Kearney, Capt. ALBERT W. METCALF, Henderson. For duty, Capt. HARRY L. RICHARDSON, Durango; from Fort Riley, Lieut. EARL W. KEMBLE, Golden.

To report by wire to the commanding general, Central Department, for asignment to duty, Lieut. CHARLES WAXHAM, Sugar City.

Connecticut

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Capt. FRANKLIN L. LAWTON, Hartford; from Camp Upton, Lieut. ANDREW J. JACKSON, Waterbury; from Fort McPherson, Lieut. RAYMOND H. RYDER, Waterbury.

To Fort Oglethorpe, base hospital, from Cape May, Capt. DOUGLAS J. ROBERTS, Bridgeport.

To Fort Warren, Mass., for duty, Lieut. CHARLES K. DEMING, New Haven.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. FRED F. ARMSTRONG, Ansonia.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. JULIAN L. BIRDSON, Hartford.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN G. ADAM, Canaan.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Capt. ABRAHAM L. OSHANSKY, New Haven.

Resignation of Lieut. GEORGE P. CHENEY, New London, accepted.

District of Columbia

To Biltmore, N. C., for temporary duty, from Camp Lee, Major JAMES F. MITCHELL, Washington.

To Fort Oglethorpe for instruction, Capt. JAMES L. BOOTH, Washington.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LESTER NEUMAN, Washington.

Georgia

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. HERBERT I. REYNOLDS, Atlanta; from Army Medical School, Lieuts. HARVEY W. SNYDER, Atlanta; ERNEST B. SAYE, Milledgeville.

To Camp Logan, Houston, Texas, base hospital, Lieut. HENRY M. McGEHEE, Talbotton.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. RUPERT H. STOVALL, Macon.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Major ZACHARY S. COWAN, Atlanta.

To Fort Oglethorpe for instruction, Capt. JOHN E. TRAIN, Savannah; Lieuts. JOHN D. BLACKBURN, CARRELL M. WEST, Atlanta; EUGENE F. GRIFFITH, Eatonton; FRANK P. NORMAN, Greenville; GEORGE Y. MASSENBURG, Macon.

Idaho

To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. EARL EAMES, Menan.

Illinois

To Camp Sherman, Chillicothe, Ohio, for duty, Capt. JOHN A. HALE, Alto Pass. With the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. GORDON E. HEIN, Chicago.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. JOHN R. POLLOCK, Nebo.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. WILLIAM C. WILLIAMS, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, Lieuts. ROGER T. FARLEY, EDGAR T. FARLEY, Chicago. For duty, from West Lafayette, Lieut. FRANK H. DEANE, Humboldt. With the board examining the troops for tuberculosis, from New Haven, Lieut. ROBERT M. CARPENTER, St. Charles.

To Biltmore, N. C., for temporary duty, from Camp Lee, Major EVARTS A. GRAHAM, Chicago.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieuts. CARL W. CLARK, THOMAS S. McCLANAHAN, WILLARD H. WATEROUS, RALPH G. WILLY, Chicago; from Fort Oglethorpe, Lieut. CLYDE D. GULICK, Urbana.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. HARRY A. WARE, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capts. HENRY M. VANHOOK, Mt. Pulaski; LOGAN O. HAMILTON, Roadhouse.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. RAY E. LOGAN, Galena. For duty, Capt. HENRY P. LANGHORST, Elmhurst.

To Camp Lee, Petersburg, Va., base hospital, from Fort Riley, Lieut. CARLETON A. HARKNESS, Chicago.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. GEORGE R. BLACKSTONE, Bushnell; ORRIS M. THOMPSON, LeRoy.

To Camp Meade, Annapolis Junction, Md., with the board examining the command for nervous and mental diseases, Lieut. PAUL J. EWERHARDT, Kankakee.

To Camp Pike, Little Rock, Ark., for duty, Lieuts. LEONARD B. GAPINSKI, EDWARD H. WARZEWSKI, Chicago.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. EARLE K. HALLOCK, Chicago.

To Cape May, N. J., base hospital, from Camp Grant, Major NORVAL H. PIERCE, Chicago.

To Fort Des Moines, Ia., base hospital, Lieut. FRANCIS L. FORAN, Chicago.

To Fort Oglethorpe for instruction, Lieut. HENRY S. EDSON, Chicago.

To New Haven, Conn., for duty, Lieut. EMERY H. DUFOUR, Chicago.

To Newport News, Va., for duty, from Army Medical School, Lieut. CARL FREUND, Chicago; from Fort Oglethorpe, Leut. KARL L. HAYES, Farmersville.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Upton, Lieut. FRED W. FIEDLER, Batchtown.

To report to the commanding general, central deparment, for duty, Capt. CHARLES ADAMS, Chicago.

To report to the commanding general, Philippine Department, for duty, from Camp Dodge, Lieut. SAMUEL L. THORPE, Clinton.

Resignation of Lieut. HARVEY L. LANGLOIS, Kankakee, accepted.

The following order has been revoked: *To Plattsburg Barracks, N. Y.*, for duty, from Lakewood, Major DANIEL A. K. STEELE, Chicago.

Indiana

To Camp Grant, Rockford, Ill., for duty, Lieut. HERBERT M. SENSENY, Fort Wayne.

To Camp Greene, Charlotte, N. C., as a member of the board examining the command for tuberculosis, from Camp Sheridan, Capt. AMZI W. HON, Indianapolis.

To Camp Jackson, Columbia, S. C., from Camp Sevier, Lieut. CHARLES F. VOIGT, New Albany.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CARL HENNING, Hanover.

To Camp Pike, Little Rock, Ark., for duty, Capts. ROBERT C. ROGERS, RODNEY D. SMITH, Bloomington; BEECHER J. TERRELL, Indianapolis; Lieut. FLOYD I. EICHER, Wakarusa.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. FRED C. DILLEY, Brazil.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Montgomery, Lieut. JULES L. BIERACH, Salem.

To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. LEE A. SALB, Jasper.

To Fort Des Moines, Iowa, base hospital, Capt. CARL W. McCAUGHEY, Greenfield.

To Fort McPherson, Ga., for temporary duty, Lieut. WILLIAM J. JOHNSON, Indianapolis.

To Fort Sam Houston, Texas, for duty, from Camp Jackson, Lieut. CHARLES E. WOODCOCK, Whiteland.

Iowa

To report by wire to the commanding general, central department, for assignment to duty, Lieut. MORTON LYON, DeWitt.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Capt. WILLIAM J. EGLOFF, Mason City.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. DEAN H. OSBORN, Monticello.

To Camp Dodge, Des Moines, Iowa, for duty, Capt. EDWARD D. MORRISON, Barnum; Lieut. WILLIAM E. ANSPACH, Colfax.

To Camp Pike, Little Rock, Ark., for duty, Capt. JOHN R. WALKER, Fort Madison.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Major HAROLD A. SPILMAN, Ottumwa.

To Colonia, N. J., for duty, from New York City, Lieut. JACOB J. SYBENGA, Pella.

To Fort Des Moines, Iowa, base hospital, Lieut. FREDERICK C. NILSSON, Laurens.

To Newport News, Va., for duty, from Army Medical School, Lieut. JOHN W. BILLINGSLEY, Monroe.

Kansas

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WALTER P. STOLTENBERG, Kingsley.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GUY R. McCREERY, Whiting.

Kentucky

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. LITTLE, Calvert.

To Camp Jackson, Columbia, S. C., for duty, Capts. SAMUEL L. BEARD, Shelleyvile; JOHN M. HACKLEY, Versailles.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. AMPHLIAS O. SISK, Earlington.

To Camp Pike, Little Rock, Ark., for duty, Lieut. LELAND E. DASHIELL, Covington.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. DAVID H. COLEMAN, Harrodsburg.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. STONEWALL J. SMOCK, Glasgow.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Camp Sherman, Major JOSEPH G. SHERRILL, Louisville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN T. PRICE, Harrodsburg.

Louisiana

To Camp Beauregard, Aexandria, La., base hospital, Lieut. VALENTINE H. FUCHS, New Orleans; from Camp Kelly, Lieut. JOSEPH M. HOUNTHA, New Orleans; from Camp Lee, Lieut. LOUIS A. HERBERT, New Orleans; from Camp Wadsworth, Lieut. JOHN SIGNORELLI, New Orleans; from Fort Riley, Lieut. WILLIAM O. CALLAWAY, New Orleans.

To Camp Devens, Ayer, Mass., for duty, from Watervliet, Lieut. WILLIAM McL. HAYES, New Orleans.

To Camp Dodge, Des Moines, Iowa, for duty, Lieut. JACOB M. BODENHEIMER, South Highlands.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN D. FRAZER, De Ridder.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Custer*, Battle Creek, Mich., base hospital, Major SAMUEL M. D. CLARK, New Orleans.

Maryland

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. CHARLES A. REIFSCHNEIDER, Baltimore; from Army Medical School, Lieut. RALPH S. STAUFFER, Hagerstown.

To Camp Shelby, Hattiesburg, Miss., as orthopedic surgeon, from Army Medical School, Lieut. DUMONT F. ELMENDORF, Baltimore.

To Fort McHenry, Md., for temporary duty, Lieut. JONATHAN E. BURNS, Baltimore.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. FRANCIS X. KEARNEY, Baltimore.

To Fort McPherson, Ga., for temporary duty, Lieut. WALTER H. WISHARD, Hagerstown.

To Newport News, Va., for duty, from Army Medical School, Lieuts. ROBERT S. CUNNINGHAM, ROBERT G. FULLER, BOWERS H. GROWT, Baltimore.

To Plattsburg Barracks, N. Y., for duty, Capt. HARRY L. WHITTLE, Baltimore.

To New York City, Neurological Institute, for inspection, and on completion *to his proper station*, Major CHARLES BAGLEY, JR., Baltimore.

Massachusetts

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Army Medical School, Lieut. RALPH H. SIMMONS, Fall River.

To Camp Crane, Allentown, Pa., for duty, from Army Medical School, Lieut. HAROLD F. BUDINGTON, Springfield.

To Camp Devens, Ayer, Mass., base hospital, Lieut. EDWARD A. ADAMS, Fitchburg. For duty, from Fort Oglethorpe, Lieut. CHARLES S. DOUCET, Lowell.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Upton, Lieut. HENRY E. ST. ANTONIO, Boston.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Lieut. CHARLES A. SALMON, Worcester.

To Biltmore, N. C., for temporary duty, from Camp Lee, Lieut. FRANKLIN A. STEVENS, Boston.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Army Medical School, Lieut. WILLIAM F. COTTING, Boston.

To Camp Jackson, Columbia, S. C., for duty, Capts. MORTIMER T. CAVANAUGH, Great Barrington; CHARLES A. HOLBROOK, Haverhill, BUTLER METZGER, Lynn.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. LOUIS STRAHLMANN, Boston; ALPHONSE F. BURRESKI, Brighton.

To Fort McPherson, Ga., for temporary duty, Lieut. JOSEPH M. LYNCH, Dorchester.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Williamsbridge, Capt. HAROLD A. JOHNSON, Lynn. Cornell Medical College, as instructor in military roentgenology, from Hoboken, Major PERCY BROWN, Boston. Neurological Institute for intensive training, Lieut. GEORGE VAN M. DEARBORN, Cambridge.

To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. JAMES M. MURPHY, Palmer.

The following order has been revoked: *To Fort McPherson, Ga.*, for duty, Lieut. FREDERICK PARKER, JR., Bedford.

Michigan

To Eagle Pass, Texas, for duty, and on completion *to his proper station*, from Leon Springs, Lieut. FREDERICK L. MORSE, Lake Odessa.

To Fort Oglethorpe for instruction, Lieuts. STANLEY A. STEALY, Charlotte; ALGERMON A. PALMER, Chelsea; JOHN W. GORDON, EDWARD D. KING, CLARENCE E. TRUESDELL, Detroit; ALBERT B. CLARK, Swartz Creek; from Camp Custer, Lieut. ARTHUR W. NEWITT, Detroit; from Fort Wayne, Mich., Major WILLIAM F. ENGLISH, Saginaw.

To Camp A. A. Humphreys, Accotink, Va., with the board examining the command for nervous and mental diseases, from Fort Benjamin Harrison, Major FREDERICK H. NEWBERRY, Detroit.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Washington, Capt. MYRON S. GREGORY, Eureka.

To Camp Lee, Petersburg, Va., base hospital, from Camp Shelby, Capt. KENNETH F. MAXEY, Detroit.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM C. KOOLS, Holland.

To Lakewood, N. J., for duty, Lieut. BERNARD A. O'HORA, Detroit.

To report to the commanding general, Philippine Department, for duty, from Fort Logan H. Roots, Major FRANK SUGGS, Detroit.

Minnesota

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Capt. JOHN C. HARDING, St. Paul; Lieut. HERMAN C. BUMPUS, Jr., Rochester.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. DANIEL F. McCANN, Bemidji.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. FREDERICK BARRETT, Gilbert.

To Camp Pike, Little Rock, Ark., for duty, Capt. WILLIAM L. PALMER, Albert Lea.

To Fort Des Moines, Iowa, for duty, from Camp Grant, Capt. RALPH E. MORRIS, Minneapolis.

To Fort Sam Houston, Texas, for duty, from Fort Oglethorpe, Major EMIL S. GEIST, Minneapolis.

The following order has been revoked: *To Fort Sheridan, Ill.,* as orthopedic surgeon, from Fort Oglethorpe, Capt. JAMES A. McLAUGHLIN, Minneapolis.

Mississippi

To Fort McPherson, Ga., for duty, Lieut. MATTHEWS C. ARMSTRONG, Arm.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE J. MANCILL, Indianola.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon from Chicago, Lieut. HARRY F. PARKER, Warrensburg.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Dodge, Lieut. EVAN S. CONNELL, Kansas City; from Camp Wadsworth, Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. LURIN P. MACKLIN, St. Louis.

To Camp Dodge, Des Moines, Iowa, for duty, Capt. FRANK L. LOGG, Farmington; Lieut. HARRY S. UPSHAW, St. Louis.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. CHARLES A. BARNARD, Portage de Sioux.

To Camp Pike, Little Rock, Ark., for duty, Capts. CHARLES C. PRESNELL, Charleston; HERBERT C. POWERS, Joplin.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. CHARLES H. OZIAS, Kansas City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieuts. HOWARD C. BRASHEAR, ROBERT M. CULLISON, GUSTAVE DAHMS, St. Louis; from Fort Riley, Lieut. RICHARD B. PLATTE, Kansas City.

To Hoboken, N. J., for duty, from New York City, Lieut. DUDLEY F. MACKEY, Clayton.

Montana

To Camp Dix, Wrightstown, N. J., base hospital, from Hoboken, Lieut. THOMAS B. SCOTT, Butte.

To Camp Dodge, Des Moines, for duty, from Jefferson Barracks, Lieut. HAROLD SCHWARTZ, Butte.

To San Francisco, Cal., for instruction, and on completion *to Camp Kearney,* Linda Vista, Calif., base hospital, Major RUDOLPH HORSKY, Helena.

Resignation of Major LEROY SOUTHMAYD, Great Falls, accepted.

The following order has been revoked: *To Camp Doniphan,* Fort Sill, Okla., from Camp Logan, Lieut. JOHN J. TOBINSKI, Missoula.

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Porter, Lieut. OSCAR E. COLEMAN, Ainsworth.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieut. MARTIN R. BROMAN, Lincoln.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM SHEPHERD, Rulo.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, from Chicago, Lieut. HARRY F. PARKER, Warrensburg.

Lieut. EVAN S. CONNELL, Kansas City; from Camp Wadsworth,

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Dodge, Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

New Hampshire

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Major ROBERT J. GRAVES, Concord.

New Jersey

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from New York City, Lieut. ARTHUR J. GANLEY, Passaic.

To Camp Devens, Ayer, Mass., for duty, Lieut. RALPH N. ABELS, Jersey City; from Fort Oglethorpe, Lieut. JAMES F. TOMPKINS, Camden; HENRY H. TOMLIN, Wildwood.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Bowie, Capt. FRIEND B. GILPIN, Crawford.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. ALEXANDER REINGOLD, Hoboken.

To Camp Jackson, Columbia, S. C., base hospital, from Hoboken, Lieut. ARCHER C. BUSH, Verona.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. MARTIN B. FINNERAN, Jersey City.

To Fort McPherson, Ga., for temporary duty, Lieut. WALTER A. RELTER, Summit.

To Fort Oglethorpe for instruction, Lieut. HARRY L. ROGERS, Burlington.

New York

To Biltmore, N. C., for temporary duty, from Camp Lee, Capt. ALEXIS V. MOSCHOWITZ, New York.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Greene, Lieut. JOHN B. D'ALBORA, Brooklyn.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. GEORGE B. RANDALL, Albany.

To Camp Devens, Ayer, Mass., *Camp Gordon,* Atlanta, Ga., and *Camp Zachary Taylor,* Louisville, Ky., for inspection, and on completion *to his proper station,* from Camp Upton, Major RUSSELL LaF. CECIL, New York. Base hospital, Lieuts. HAROLD C. HAVILAND, Albany; MYRON A. THOMPSON, Buffalo; REUBEN STEINHOLZ, New York. For duty, from Army Medical School, Lieut. MICHAEL G. HEALY, New York; from Fort Oglethorpe, Lieut. ALBERT R. ELLISON, Buffalo.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. HOWARD C. JOHNSTON, Corinth; FRANK S. SCHOONOVER, New York.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. JOSEPH C. DEVRIES, Brooklyn. For duty, from Army Medical School, Lieut. FRANCIS E. WEATHERBY, New York.

To Camp Lee, Petersburg, Va., base hospital, Lieut. FREDERICK C. SCHREIBER, New York. For duty, from Army Medical School, Lieut. WALTER F. TOLSON, New York.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. HORACE E. AURINGER, New York.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LEO. M. SACHS, Buffalo.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. RAYMOND G. BLOOD, Blackwell's Island.

To Fort Bliss, Texas, base hospital, from Washington, Capt. WILLIAM R. WOODBURY, Rochester.

To Fort McPherson, Ga., for duty, Lieuts. SAMUEL E. APPEL, Dover Plains; WARREN W. BELL, MAX HARRISON, New York; RALPH B. POST, Ravena; LEOPOLD SZERLIP, Rockaway Beach; FREEMAN S. O'BRIEN, Wappingers Falls.

To Fort Niagara, N. Y., for duty, Lieut. ADOLPH S. KATZMAN, Floral Park, L. I., N. Y.

To Fort Oglethorpe for instruction, from duty as an enlisted man, Lieut. FREDERICK WEINSTRAUB, Brooklyn.

To Fort Sam Houston, Texas, for duty, from Camp Joseph E. Johnston, Lieut. HAL McC. DAVISON, New York; from Camp Sherman, Lieut. ORVILLE H. RICHER, New York.

To Hoboken, N. J., base hospital, Lieut. HAROLD R. BROWN, New York; from Camp Upton, Lieut. ANTHONY W. M. MARINO, Brooklyn. For duty, from New York City, Capt. FREDERICK M. LAW, New York.

To Lakewood, N. J., for duty, Lieut. RANDOLPH WEST, New York.

To Mineola, L. I., N. Y., for duty, from Camp Lee, Major ARTHUR S. MOORE, Middletown. For duty, Capt. FRANK M. HALLOCK, New York.

To Newport News, Va., for duty, from Army Medical School, Lieut. PHILIP H. CLARKE, Brooklyn.

To New York City, Neurological Institute, for instruction, Lieut. JULIUS GOTTESMAN, New York.

To Plattsburg Barracks, N. Y., for duty, from Camp Lee, Capt. JAMES F. MUNSON, Sonyea; from New York, Lieut. HENRY K. SCHNEIDER, New York; from the Surgeon-General's Office, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Philadelphia, Pa., Medical Arts Building, for instruction, from New York, Capt. CHARLES E. E. PANNACI, Gloversville.

To report to the commanding general, Philippine Department, for duty, from Boston, Lieuts. ISIDOR GRAD, New York; JOHN F. HOLDEN, White Plains.

To report to the Governor, Panama Canal, C. Z., for duty, Capt. STANLEY D. GIFFEN, New York.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Cape May, N. J.,* for duty, from Camp Joseph E. Johnston, Capt. WALTER H. SANFORD, Kings Park. For instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. HARRY BAKWIN, New York.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Capts. JOHN R. HERRICK, Hempstead; DUDLEY S. CONLEY, New York. On completion *to Camp Custer,* Battle Creek, Mich., base hospital, from Fort Oglethorpe, Lieut. WILLIAM C. HANNON, New York.

To San Antonio, Texas, as orthopedic surgeon, from Army Medical School, Lieut. RAEBURN J. WHARTON, Brooklyn.

To Washington, D. C., for duty in the Surgeon-General's Office, from Newport News, Capt. HARRY PLOTZ, Brooklyn.

The following orders have been revoked: *To Camp Doniphan,* Fort Sill, Okla., from Fort Logan, Lieut. GEORGE W. BATT, Kennedy. *To Camp Jackson,* Columbia, S. C., base hospital, Lieuts. ABRAHAM KARDINGER, JEROME L. KOHN, New York. *To Fort Oglethorpe* for instruction, Lieut. ABRAHAM RAVICH, Brooklyn.

Resignation of Lieut. JACOB E. HODES, Brooklyn, accepted.

North Carolina

To Camp Beauregard, Alexandria, La., base hospital, Capt. PAUL H. RINGER, Asheville; PORTER P. VINSON, Davidson.

To Fort McPherson, Ga., base hospital, Capt. JAMES B. BULLITT, Chapel Hill.

Ohio

To Camp Grant, Rockford, Ill., for duty, from Hoboken, Lieut. GEORGE S. NUTT, Youngstown.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. EARL E. BAKER, Cincinnati.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY S. SHAMANSKY, Cincinnati. For duty, from Camp MacArthur, Lieut. JAMES A. BELYEA, Toledo.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. GEORGE L. CRISTY, Painesville; from Fort Oglethorpe, Lieuts. ROBERT C. VAN BUREN, Carey; ROSWELL W. COMSTOCK, Maumee.

To Fort Sam Houston, Texas, for duty, from Camp Shelby, Lieut. HENRY A. SPRINGER, Dayton.

To Fort Warren, Mass., for duty, Lieut. JOHN L. WEBB, Carbon Hill.

To Lakewood, N. J., for duty, from Camp Sherman, Major ROGER S. MORRIS, Cincinnati.

To Markleton, Pa., for duty, Capt. HENRY K. DUNHAM, Cincinnati.

To Army Medical School for instruction, Major ALLEN FREEMAN, Columbus.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. FRED C. HUNT, Girard; JOHN D. SIDDALL, Kalida; WALTER J. WEISER, Marion.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. WILLIAM E. MASTER, Scio; FOREST C. HANEY, Woodsfield; JONAS E. KING, Youngstown.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. CHARLES L. MAXWELL, Columbus.

To Fort McPherson, Ga., for duty, Lieuts. CHARLES McC. BRAY, NEVIN C. MAYER, DAVID V. ROSENBERG, Cleveland.

To Fort Oglethorpe for instruction, Lieut. ELBER R. BRUBAKER, Springfield. For instruction in orthopedic surgery, from Army Medical School, Capt. ELMER A. KLEIN, Norwood.

To Hoboken, N. J., base hospital, Lieuts. ERIC R. TWACHTMAN, Cincinnati; ARCHIE D. WOODMANSEE, Washington Court House. For duty, from Camp Dix, Lieut. LOUIS A. MITCHELL, Newark; from Camp Meade, Lieut. DANIEL W. JONES, Columbus; from Fort Oglethorpe, Lieuts. ARCHIBALD A. SOUTHWICK, Cleveland; HARRY M. RAMBO, Janesville.

To Plattsburg Barracks, N. Y., for duty from Camp Gordon, Capt. ALFRED P. COLE; Cincinnati.

To Watervliet, N. Y., for duty, from Fort Oglethorpe, Capt. GEORGE E. GARWOOD, Colton.

Resignation of Lieut. CHARLES H. BAILEY, East Liverpool, accepted.

Oklahoma

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Sam Houston, Major ABRAHAM L. BLESH, Oklahoma City.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. HAROLD N. JUSTICE, Sapulpa.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. CHARLES J. BRUNSON, Adamson; JOHN D. LEONARD, Strang.

To Camp Zachary Taylor, Louisville, Ky., as orthopedic surgeon, from Chicago, Lieut. EARL L. YEAKEL, Oklahoma City. For duty, from Colonia, N. J., Lieut. MARION M. ROLAND, Oklahoma City.

To Camp Doniphan, Fort Sill, Okla., base hospital, Lieut. VICTOR C. TISDAL, Elk City.

To Camp Pike, Little Rock, Ark., for duty, Lieuts. ONIS FRANKLIN, Broken Arrow; BENJAMIN F. NEWLON, Ponca City.

To Fort Des Moines, Iowa, base hospital, Lieut. ROY L. PENDERGRAFT, Hollis.

To Newport News, Va., for duty, from Army Medical School, Lieut. DAVID A. GREGORY, Ardmore.

The following order has been revoked: *To San Francisco, Calif.*, for duty, from Chicago, Capt. FENTON M. SANGER, Oklahoma City.

Oregon

To Camp Lewis, American Lake,, Wash., as division tuberculosis specialist, Major RAY W. MATSON, Portland. For duty, Lieut. ROBERT L. WOOD, Amity; from Fort Riley, Lieut. HENRY Z. THARP, Dallas.

To Fort Leavenworth, Kan., for duty, Lieut. FRANK. R. MENNE, Portland.

Pennsylvania

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Jacksonville, Lieut. CLARENCE S. KURTZ, Malvern.

To Camp Kearney, Linda Vista, Calif., base hospital, from Camp Fremont, Lieut. FRANK E. SMITH, New Kensington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ALBIN ROZPLOCH, Philadelphia. For duty, Lieut. ALVA H. GAVEN, Youngwood. From Camp Dix, Lieut. SNOWDEN K. HALL, Sharpsburg; from Fort Oglethorpe, Lieut. BOYD E. WILKINSON, Trevorton; from Williamsbridge, Lieut. WARREN T. O'HARA, New Kensington.

To Camp Meade, Annapolis Junction, Md., as a member of the board examining the command for nervous and mental diseases, Lieut. FREDERICK FRALEY, Lieuts. CARL F. BIGONEY, Lansdale; ABRAHAM J. BARON, JAMES H. BARTLEY, Jr., Philadelphia. Base hospital, Capt. GEORGE H. CROSS, Chester; from Army Medical School, Capt. WILLIAM H. BAILEY, Philadelphia. For duty, from Fort Oglethorpe, Lieut. LEON J. COMCHE, Waterman.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Capt. HENRY B. INGLE, Philadelphia.

To Takoma Park, D. C., Bliss Electrical School, to make physical examinations and give medical attention to the drafted men to be enrolled at this institution, and on completion *to his proper station*, from Army Medical School, Lieut. WILLIAM F. PETERS, Philadelphia.

To Washington Barracks, for duty, from Washington, Capt. BENJAMIN H. PATTERSON, Wilkinsburg.

To Waynesville, N. C., for duty, from Camp Sevier, Capt. NORMAN R. GRAHAM, Sharpsburg.

To Army Medical School for instruction, Major ARTHUR P. HITCHENS, Glenolden.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. NATHAN ASHINKEY, Pittsburgh.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. HARRY H. THOMPSON, Philipsburg. For duty, from Army Medical School, Lieut. LEO T. MULLAHEY, Shenandoah.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. GERANON N. GINSBERG, Philadelphia; ROBERT M. COCHRANE, Pittsburgh.

To Camp Wheeler, Ga., base hospital, Lieuts. GEORGE H. BLOOM, Ogontz; ABRAHAM BERNSTEIN, Philadelphia.

To Camp Zachary Taylor, Louisville, Ky., for duty, From Fort Oglethorpe, Lieut. BART J. SMITH, Windber.

To Fort Leavenworth, Kan., for duty, Lieut. OMER R. ETTER, Philadelphia.

To Fort McPherson, Ga., for temporary, duty, Lieuts. GUY P. ASPER, Chambersburg; WILLIAM J. BASLER, Harrisburg.

To Fort Oglethorpe base hospital, from Camp Devens, Capt. DANIEL M. HOYT, Philadelphia. For instruction, Major WILLIAM E. ASHTON, Philadelphia; Capts. ROY E. SLEPGY, Library; RICHARD P. SMITH, Philadelphia; Lieuts. BRUCE E. NEVIN, Mercersburg; from Philadelphia, Major EDWARD MARTIN, Philadelphia; Capt. WILLIAM H. FURNESS, Wallingford.

To Hoboken, N. J., for duty, from Camp Logan, Capt. WALTER L. HENDERSON, East McKeesport.

To Lakehurst, N. J., for duty, from southern department, Capt. EDWARD W. McCLOSKEY, Philadelphia.

To Lakewood, N. J., for duty, Lieut. JACOB W. MITCHELL, Pittsburgh.

To Newport News, Va., for duty, from Fort McPherson, Major EARL D. BOND, Philadelphia. *To Newport News* and *Camp Lee*, Petersburg, Va., to give orthopedic instruction, and on completion *to his proper station*, Major JAMES T. RUGH, Philadelphia.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp McClellan, Capt. ALBERT J. WINEBRAKE, Scranton.

To report to the commanding genral, Philippine Department, for duty, from Fort Oglethorpe, Lieut. WM. C. MILLER, Warren.

Porto Rico

To Camp Las Casas, San Juan, P. R., for duty, from San Juan, Lieut. FRANCISCO J. M. HERNANDEZ, Juncas.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieuts. JUAN H. FONT, Barranquitas; AUGUSTINE R. LAUGIER, San Juan.

Rhode Island

To Camp Jackson, Columbia, S. C., for duty, Capt. FRANK M. ADAMS, Providence.

South Carolina

To Fort McPherson, Ga., for duty, Lieut. BENJAMIN O. WHITTEN, Columbia.

South Dakota

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Riley, Lieut. JOHN C. ROGERS, White Lake.

Tennessee

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. SALVADOR L. BOCCELLATO, Memphis.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. TATE B. COLLINS, Trezevant.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. JAMES H. HITE, Nashville.

To New Haven, Conn., for duty, Lieut. LEON T. STEM, Chattanooga.

To Newport News, Va., for duty, from Edgewood Arsenal, Lieut. FREDERICK W. LEE, Springfield.

Texas

To Camp Beauregard, Alexandria, La., base hospital, Capt. PETER SCARDINO, Houston.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Fort Oglethorpe, Major FREDERICK J. COMBE, San Antonio.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieuts. CLARENCE L. McCLELLAN, Farwell; MILES R. HASTINGS, Galveston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. JOSEPH KOPECKY, El Campo.

To Fort Bliss, Texas, base hospital, Major FREDERICK O. WAAGE, El Paso.

To Fort McPherson, Ga., for duty, Lieut. EUGENE L. LAWRENCE, Thorndale.

To Newport News, Va., for duty, from Army Medical School, Lieuts. HUGH J. DAVIS, Austin; LEVY S. JOHNSON, Richmond.

To report to the commanding general, Philippine Department, for duty, from Camp Kearney, Capt. RICHARD E. NICHOLSON, Brenham; from Camp Lewis, Lieut. GREEN L. REA, Bryan.

Utah

To Fort Oglethorpe for instruction, Lieut. FRANCIS A. GOELTZ, Salt Lake City.

Virginia

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. ALEXANDER F. ROBERTSON, Jr., Staunton.

To Camp Logan, Houston, Texas, for duty, from Fort Oglethorpe, Lieut. ARTHUR H. DEEKENS, Lynchburg.

To Fort Oglethorpe for instruction, Lieut. PITT E. TUCKER, Buckingham.

To report to the commanding general, Philippine Department, for duty, from Fort Oglethorpe, Major SAMUEL B. MOORE, Alexandria.

West Virginia

To Camp Jackson, Columbia, S. C., for duty, Capt. WILLIAM F. CROW, Glen Easton.

To Camp MacArthur, Waco, Texas, as sanitary inspector, from Fort Oglethorpe, Lieut. WASHINGTON W. STONESTREET, Morgantown.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. WALTER E. VEST, Huntington.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. JOSEPH C. FORD, Oak Hill.

To Fort McPherson, Ga., for temporary duty, Lieut. JAMES E. HUBBARD, Hinton.

To New Haven, Conn., for duty, Lieut. JOHN W. GILMORE, Wheeling.

Honorably discharged, Capt. LEO HUTH, Fallansbee. On account of physical disability existing prior to entrance into the service, Lieut. GEORGE W. SHRIVER, Glendenin.

Washington

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN F. MacDONALD, Hoquiam.

To Plattsburg Barracks, N. Y., for temporary duty, Capt. JULIUS G. NEWGORD, North Yakima.

Wisconsin

To Camp Custer, Battle Creek, Mich., with the board examining the command for cardiovascular diseases, from Cape May, Capt. J. GURNEY TAYLOR, Milwaukee.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CORNELIUS N. STUESSER, Oconomowoc.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. WILLIAM F. BAKER, Birnamwood; ADOLPH L. KYLLO, Grantsburg.

To Fort H. G. Wright, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRANK A. BOECKMAN, Greenwood.

To Fort McPherson, Ga., for duty, from Lakewood, Capt. OSCAR C. WILLHITE, Lake Geneva.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. NEAL S. SIMONS, Taylor.

Wyoming

To Camp Lewis, American Lake, Wash., for duty, Capt. CHARLES E. LANE, Lander.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. William C. Vandiver, Mena, is reported to be critically ill with nephritis.——The office of Dr. Roscoe T. Gephart, Cotton Plant, was destroyed, May 9, by a fire, which did $75,000 worth of damage to the town.

State Society Meeting.—At the forty-second annual session of the Arkansas State Medical Society, held at Jonesboro, May 7 to 9, Little Rock was decided on as the place of meeting for 1919, and the following officers were elected: president, Dr. Edward F. Ellis, Fayetteville; vice presidents, Dr. C. N. Phillips, Mena; Henry H. Righter, Helena, and Reuben Y. Phillips, Malvern; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected), and treasurer, Dr. William R. Bathurst, Little Rock.

Public Health Meeting.—The annual meeting of the Arkansas Public Health Association was held in Little Rock, May 30, and the following officers were elected: president, Dr. Augustus C. Shipp (reelected), Little Rock; vice presidents, Drs. Octavius L. Williamson, Marianna, and Mrs. W. A. Billingsley, and treasurer, T. S. Shannon. The following physicians were elected as directors: Drs. Joseph E. Sparks, Crossett; Stanley M. Gates, Monticello; Dr. Charles W. Garrison, Little Rock; John Stewart, Booneville; Thomas J. Woods, Evening Shade; James W. Walton, Benton, and H. N. Niehuss, Eldorado.

Upholding Compulsory Vaccination Regulation. — The supreme court of Arkansas in an opinion rendered, June 3, 1918, has upheld a regulation promulgated by the state board of health providing that no person shall be a teacher, employee or pupil in a public school or a private school without having first presented to the teacher in charge, or the proper authorities, a certificate of a successful vaccination or of immunity by reason of having had smallpox.

The court, by Justice Humphreys, quotes the act of the legislature creating the board of health, and says that while the board is not specifically authorized to supervise, control, suppress or prevent smallpox by isolation, quarantine or vaccination, yet the language is broad enough to include all infectious diseases, of which smallpox is one, and for whose suppression or prevention rules may be made. While the state board of health is not authorized to manage or control the schools, the prevention of the spread of contagious or infectious diseases, by preventing unvaccinated persons from associating with the schoolchildren and school teachers of the state, in no way infringes on the constitutional right to attend the schools or management and control thereof by school boards or directors.

The contention that compulsory education, under the rule of the board would mean compulsory vaccination, could not stand because, while there is no American authority for compulsory vaccination in the sense of compelling one to submit his person thereto there is authority for penalizing one who refuses to comply with an order or law requiring vaccination. Decisions are quoted on this point. Both the vaccination rule and the compulsory education act are enforceable under penalty of fines, so they are to be read together.

ILLINOIS

Personal.—Dr. William M. Hanna, Aurora, has been elected medical director of the G. A. R., department of Illinois.——Mr. Howard W. Fenton has been appointed manager of the central division of the American Red Cross, with headquarters at Chicago, succeeding Mr. Bruce D. Smith, resigned to take up work in France for the Red Cross.——Dr. John B. Nardi, Chicago, who was seriously injured, Nov. 26, 1917, by being struck by an automobile while crossing Midway Boulevard, has recovered and will soon resume practice.

KENTUCKY

Personal.—Dr. Meverell K. Allen, formerly health officer of Louisville and medical director of the Inter Southern Life Insurance Company, was stricken with cerebral hemorrhage, June 19, and is under treatment at St. Joseph's Infirmary.——Dr. W. Ed. Grant has been appointed registrar of vital statistics for Louisville and for Jefferson County by the state board of health.

Louisville

Members of New Board of Health.—June 27, the governor announced the members of the state board of health, in accordance with the bill passed by the last legislature, reorganizing the state board of health and combining under one control the work of the tuberculosis commission, the pure food and drug division of the agricultural experiment station, the hotel inspection, and the work of the former state board of health. The members are as follows: Dr. Carlos A. Fish, Frankfort; Dr. George T. Fuller, Mayfield; Dr. Josiah G. Furnish, Covington, and Dr. H. H. Carter, Shelbyville, members of the old board; Dr. Argus D. Willmoth, Louisville, and Dr. Elijah H. Maggard, Wayland, from the tuberculosis commission; Dr. Oscar C. Dilly, Louisville, from a list submitted by the Kentucky Pharmaceutical Association and the board of pharmacy, and Dr. Carl Lewis Wheeler, Lexington, and Dr. John D. Williams, Ashland, from the state at large. The tenth member who was elected by the appointed members is Dr. W. Lucier Heizer, Bowling Green, former secretary of the tuberculosis commission, who by virtue of his office becomes the executive officer and secretary of the board. Dr. Willmoth was elected president and Dr. Wheeler vice president. Immediately on the announcement of the new board of health, Dr. Joseph N. McCormack, Bowling Green, secretary of the old board; Dr. William W. Richmond, Clinton, and Dr. Isaac A. Shirley, Winchester, of the old board, obtained a restraining order issued by Judge Robert L. Stout, of the Franklin Circuit Court, restraining the new board from exercising the functions of the state board of health, from organizing any of its bureaus, and from taking possession of the office, books and accounts, from claiming any of the rights or titles to the office as members of the board, and from interfering in any way with the old board's activities. The petition before Judge Stout names all the members of the new board, and denounces the section creating the new board as a violation of the constitutional requirement that the subject matter of all the sections of an act must be mentioned in the title of the act and must be related to it.

MARYLAND

Hopkins Hospital Raises Rates.—The Johns Hopkins Hospital has felt the effects of the war and consequently, in addition to raising the fee for all ward cases, has advanced the rates at the dispensary which patients applying for the first time will have to meet. Heretofore, patients applying at the dispensary for the first time were required to pay a fee of 10 cents for an admittance card, whereas they are now charged 25 cents for the first visit and 10 cents for each succeeding visit. Ward cases which were formerly $2 are now $2.50, and patients securing medicine will have to pay a sum as near the actual cost as their means will allow. The increase in rates at the Johns Hopkins Hospital should not cause serious hardships among the poor, as many men are now making triple the wages paid them a year ago. An effort is also being made to stamp out the practice of people who, though able to afford a physician, visit the dispensary and secure the benefits that others in dire straits should have.

MASSACHUSETTS

Hospital Cornerstone Laid.—The cornerstone of the reconstruction hospital to be erected in Boston by the Benevolent Protective Order of Elks, and presented by the organization to the government, was laid with impressive ceremonies, June 15.

State Medical Society Meeting.—The Massachusetts Medical Society held its one hundred and thirty-seventh annual meeting at the Boston Medical Library, The Fenway, June 18 and 19, and the following officers were elected: president, Dr. Samuel B. Woodward, Worcester (reelected); vice president, Dr. George P. Twitchell, Greenfield; secretary, Dr. Walter L. Burrage, Jamaica Plain, Boston (reelected); treasurer, Dr. Arthur K. Stone, Framingham Center, and orator, Dr. Samuel Crowell, Boston.

Beth Israel Hospital News.—The directors of the Beth Israel Hospital, Roxbury, Boston, have purchased a building, adjacent to the hospital grounds, in which they will establish an outpatient department. The medical staff has already been organized and the new department will be open by the middle of August. The directors of the hospital, at a special meeting, adopted resolutions offering the use of ten beds for the treatment of wounded soldiers and sailors returned to Boston, and furthermore offering enough space on the grounds

of the hospital to accommodate 100 patients, providing the government will furnish tentage.

Personal.—Dr. Robert B. Greenough, Boston, has been reappointed, by the Harvard commission, director of the cancer commisison of the university, and surgeon in charge of the Collis P. Huntington Memorial Hospital. Dr. Channing C. Simmons, Boston, was appointed secretary of the commission and surgeon to the hospital, and Dr. Edward H. Risley, Boston, surgeon.——Dr. Edward A. Supple, Boston, has resigned as visiting surgeon to St. Elizabeth's Hospital. ——Dr. Eoline B. C. Dubois, Springfield, has gone to France where she will be associated with the medical department of Secretariat of the Bureau of Liberated French Villages.

MINNESOTA

Infantile Paralysis Clinic.—The state board of health will hold its third free clinic for infantile paralysis cases at Mankato, July 2, at Worthington, July 8 and 9, at Tracy, July 10 and 11, and at Granite Falls, July 12 and 13.

NEW YORK

New York City

Farewell Dinner for British Physicians.—Sixty New York physicians and surgeons gave a farewell dinner at the Metropolitan Club on the evening of June 26 to Sir William Arbuthnot Lane, Sir James Mackenzie, and Col. Herbert A. Bruce, who expect to leave this country soon. Brief addresses were made by the three guests of honor.

New Hospital for the Bronx.—The Bronx Hospital Association has purchased the Eichlen estate, at Fulton Avenue and One Hundred and Sixty-Ninth Street, the Bronx, for a little more than $110,000. A campaign has been started to raise $35,000 with which to remodel the Eichlen mansion to serve as a hospital. A children's ward and a dispensary are also to be established on the estate. Dr. Alexander Goldman is president of the association.

Catholics to Build War Hospital.—The National Catholic War Council has about completed plans for the erection of a $300,000 hospital for soldiers and sailors in Manhattan. A site has been selected and arrangements are being made for the remodeling of one building and the construction of another. The hospital will have 500 beds and immediately on its completion, it will be turned over to the government for whatever purposes the War Department may desire.

Homes Offered as First Aid Hospitals.—At a committee meeting of the emergency unit of Harlem, composed of fifty physicians, it was announced that H. C. Frick, G. J. Gould, and S. Lewisohn have offered their homes to the police department in the event of an air raid or any other emergency. The unit has organized and its members are undergoing training for first aid work under Lieut. Abraham Lustgarten, U. S. M. C., in order that they may be ready to render assistance in case of emergency. Physicians and nurses in the hospitals in the Harlem district have been invited to avail themselves of the course of training offered. Among the members of the committee are Dr. Edward E. Myers, Dr. F. U. Rothstein, Dr. David E. Alexander, Dr. Morris Stark, Dr. Louis M. Pearlman, and Dr. Oscar E. Kupferman.

Fox Hills Base Hospital Completed.—The United States Base Hospital at Fox Hills, Staten Island, comprising eighty-six buildings, was completed, June 25, the entire plant having been constructed in 100 days. The hospital is now prepared to care for 3,000 patients. The staff consists of a personnel of 650, including physicians, nurses and attendants. There are three large wards containing 1,000 beds each. The hospital is one of the largest in the world. Col. William Rutherford, U. S. Army, M. C., will be in charge. In connection with the hospital, the American Red Cross has completed a theater for the patients which will seat 7,200 persons. Fifteen acres of land adjoining the hospital have been purchased by the government so that the capacity of the hospital may be doubled at any time.

Statistics of New York Milk Committee.—An infant mortality survey by the New York Milk Committee has just been made public, which shows that New York City has reached the lowest baby death rate in its history. The survey covers the year 1917, for which the infant death rate is 88.8 per thousand living births. In 1907 it was 135.8. For this decrease the various educational campaigns conducted by health authorities and others are given credit and the milk committee also claims a share of credit for these results. The statistics show that the number of babies that perish annually is still very large. There were 12,568 deaths of infants under 1 year of age for 1917 as against 16,000 in 1907. The report also contains a survey for the entire country based on figures from 163 of the largest cities. These show, with one exception, decreases in the infant death rate. The lowest mortality for cities of 100,000 population or more is found at Omaha and Seattle, which have 59.2 and 59.4 per thousand, respectively. The lowest rate for the entire country is held by Alameda, Calif., where the rate is 40.7. Four other cities of less than 50,000 with records a fraction higher than this record are Brookline and Everett, Mass., and La Crosse, Wis., and Berkeley, Calif. The highest mortality of the country was at Nashville, Tenn., which has a rate of 182.2, with a population of 119,364. The mayor's committee of women on national defense reports that the physicians of New York are cooperating well in the work of children's year. On one day recently 400 babies were weighed and measured in the Grand Central Palace.

NORTH DAKOTA

Personal.—Dr. Albert M. Fisher has resigned as physician to the state penitentiary, Bismarck, and has been succeeded by Dr. Clyde E. Stackhouse.——Dr. Henry O'Keefe, city health officer, has been elected secretary of the Grand Forks Board of Health.

New State Officers.—The thirty-first annual meeting of the North Dakota State Medical Association was held in Fargo, June 19 and 20, under the presidency of Dr. George M. Williamson, Grand Forks. A service flag bearing 125 stars was dedicated, and the following officers were elected: president, Dr. Edgar A. Pray, Valley City; vice presidents, Drs. William P. Baldwin Casselton; Fred E. Ewing, Kenmare, and Harley E. French, Grand Forks; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; councilors, Drs. Edward M. Ranson, Minot; Frederick L. Wicks, Valley City; Le Roy G. Smith, Medina, and Charles MacLachlan, New Rockford; delegate to the American Medical Association, Dr. Charles MacLachlan, New Rockford, and alternate, Dr. Frank W. MacManus, Williston. The house of delegates made the following recommendations for members of the state board of medical examiners: Drs. Hugo O. Altnow, Mandan; Henry G. Woutat, Grand Forks, and Paul Sorkness, Fargo. Grand Forks was selected as the next place of meeting.

OHIO

New Hospital.—The dedicatory program of the Mercy Hospital, Toledo, continued from June 21 to 23, and on the last two days a public reception was held and an open-air address was delivered, June 22, by Dr. James J. Walsh, New York City, dean of Fordham University.

Hospital to Accept Early Tuberculosis Cases.—At a meeting of the representatives of county commissioners of Mahoning, Columbiana, Stack, Portage and Summit counties, June 14, it was decided that Springfield Lake Sanitarium is to be a hospital for curable rather than for incurable cases of tuberculosis.

Roentgen-Ray Association Organized.—As a result of the roentgen-ray clinic held in the Mansfield General Hospital during the first week in June, the Ohio Roentgen-Ray Association has been organized with Dr. Jacob Y. Salzman, Mansfield, as president, and Dr. Robert B. Cameron, Defiance, as secretary-treasurer.

Personal.—Dr. Frank Warner, Columbus, had conferred on him at the annual commencement exercises of the Denison University, Granville, June 12, the degree of D.Sc.——Dr. James A. Leonard, for sixteen years superintendent of the state reformatory, Ashland, has resigned on account of ill health.——Dr. William H. White, Cleveland, has been reinstated as chief medical examiner of the state industrial commission.——Dr. Amos C. Knestrick, Wooster, was operated on for appendicitis, June 12, and is reported to be doing well.

Cincinnati

Gift of Medical Library.—The Academy of Medicine recently presented to the Cincinnati General Hospital more than 3,000 volumes of medical books, the accumulation of nearly half a century.

Personal.—Prof. Lauder W. Jones, head of the department of chemistry at the University of Cincinnati, has resigned to accept the position of chief of the research division of gas

defense at the American Hospital, Washington.——Dr. E. Peter Joseph has been adjudged insane and committed to Long View Hospital.——Dr. H. H. Bunzell has been appointed an assistant professor of biochemistry in the Medical College of Ohio.——Dr. William B. Wherry, professor of bacteriology in the University of Cincinnati, has been placed in charge of the Detroit School of Medicine.

PENNSYLVANIA

Personal.—Dr. H. Melvin Allen, Reading, Berks County, has been commissioned major, and Dr. Samuel Brister, first lieutenant in the Medical Corps, Pennsylvania Reserve Militia, and both have been assigned to duty with the First Infantry.——Dr. Joseph S. Neff, Narberth, formerly director of health of Philadelphia, has been appointed a member of the advisory board of the state department of health, succeeding the late Senator Daniel Gerberich, Lebanon.

WISCONSIN

Hospital Transferred.—Mercy Hospital, Oshkosh, formerly the Lakeside Hospital, has been formally transferred to the Sisters of the Sorrowful Mother, and will be in charge of Sister Cornelia. It is proposed to maintain a training school for nurses in connection with the institution.

Oaks Sanatorium.—The name Oaks Sanatorium was selected, June 26, for the new sanatorium for the cure of tuberculosis which is now operated by Waukesha County. The sanatorium, which is located in the northern part of Pewaukee Township, is practically completed, but it is not yet furnished. It will be opened as soon as the equipment can be installed.

CANADA

Public Health.—Halifax, N. S., wants a medical officer of health at a salary of $2,500 a year.

Personal.—Col. Harold C. Parsons, Toronto, who was with the University of Toronto Base Hospital overseas, has landed at New York and has gone on to Ottawa, where it is understood he is slated for an important military appointment.——Dr. Charles J. Copp, Toronto, has been attending a meeting of the St. John's Ambulance Brigade at Sidney, N. S.——Capt. Gordon A. Bates, Toronto, has gone to Nova Scotia to read papers before the Nova Scotia Medical Society and the Halifax Medical Society.

Hospital News.—By the will of the late Mr. John Ross Robertson, Toronto, proprietor of the *Evening Telegram*, the residue of his million-dollar estate is to revert to the Hospital for Sick Children, Toronto, on the death of his widow and only surviving son. Mr. Robertson was one of Canada's leading philanthropists and took a special care and interest in the Hospital for Sick Children. It is not to be amalgamated with the Toronto General Hospital under the terms of the will, otherwise it will lose the magnificent bequest. He also left several large amounts to other charitable institutions.——Dr. Charles K. Clarke, who has been superintendent of the Toronto General Hospital for a number of years, has definitely severed his connection with that institution and will hereafter devote his whole attention to the Mental Hygiene Association of Canada.——Dr. John N. E. Brown, formerly medical superintendent of the Toronto General Hospital and of the Ford Hospital, Detroit, has established in practice in Toronto, and is devoting special attention to consultation work in connection with the establishment of new hospitals.——The Winnipeg General Hospital is advertising for a medical superintendent.

Ontario Medical Council.—The Ontario Medical Council closed its annual session, June 28. The fact that a Toronto physician was before the court during the week for free-and-easy prescribing of liquor, precipitated what easily proved the most interesting of the proceedings of the council's deliberations for the whole session. In eleven days the physician in question had given 1,274 prescriptions for liquor under the Ontario Temperance Act. The result was a fine of $300 on each of four counts, making a total of $1,200. So far as action in disciplining the physician was concerned, the council simply referred the matter to the executive committee. But that action apparently does not meet with the approval of the Ontario License Board, who will hereafter require all vendors of liquor in the province, not later than the tenth of each month, to report the names of physicians and the total prescriptions issued by them each month. Dr. Edmund E. King, Toronto, president of the council, threw a small-sized, or perhaps it may be considered a large-sized, bomb into the council and also into the profession. He had secured official figures for Toronto on the way physicians were prescribing liquor. His statistics covered a period of ten days—from June 1 to June 11. Five hundred and twenty-five physicians had issued about 4,000 prescriptions for "booze." Some had issued as many as 52, 53, 63, 67, 68, 73, 99 and 215 each. The number of practitioners who had given more than one prescription was 275, and nearly one third of that number had given ten. During the month of April, 5,369 prescriptions were issued in Toronto, as compared with 9,255 in May. Under the law a physician may prescribe a quart at a time, but the council will petition the legislature to change this to 8 ounces. As the law permits a physician to keep 10 gallons for his practice at any time, some may also have been dispensed from the office. Dr. A. T. Callum, Niagara Falls, Ont., reported that medical examination of the manhood of Canada had revealed the fact that the percentage of unfit varies from 40 to 70 per cent. In view of these statistics Dr. Callum moved a resolution that some form of supervision of health should be instituted by the state, and that the matter be referred to the proper departments of the federal and provincial governments. The council went on record as disapproving the recommendation of Mr. Justice Hodgins that a department of physicotherapy in Toronto, Western and Queen's universities be established under the department of physics. They state it should be under the department of therapeutics. The following officers were elected: president, Dr. Robert Ferguson, London; vice president, Dr. Arthur T. Emmerson, Goderich, and registrar-treasurer, Dr. H. Wilberforce Aikins, Toronto.

GENERAL

New York and New England Railway Surgeons Meet.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons, will be held at Hotel McAlpin, New York City, October 21, under the presidency of Dr. James S. Hill, Bellows Falls, Vt. The symposium will be on "Modern Treatment of Infected Wounds."

Gastro-Enterologists Elect New Officers.—At the twenty-first annual meeting of the American Gastro-Enterological Association, held in Atlantic City, May 6 and 7, the following officers were elected: president, Dr. Walter A. Bastedo, New York City; vice presidents, Drs. Thomas R. Brown, Baltimore, and Franklin W. White, Boston; secretary-treasurer, Dr. Frank Smithies, Chicago, and recorder, Dr. Horace W. Soper, St. Louis.

Fraternity Convention.—The national convention of the Phi Beta Pi Medical Fraternity at Kansas City closed, May 3, with a banquet at Hotel Muehlebach, at which the following officers were elected: supreme archon, Dr. David S. Long, Harrisonville, Mo.; supreme vice archon, Dr. Dale D. Turnacliff, St. Paul; supreme secretary-treasurer, Dr. Lawson G. Lowrey, Boston, and supreme editor, Dr. Walter A. Fansler, Minneapolis.

Hospital Association Meets.—At the third annual meeting of the Catholic Hospital Association, held in Chicago, June 18 to 20, standardization was one of the principal subjects discussed and the following officers were elected: honorary president, the Rt. Rev. Sebastian G. Messmer, Milwaukee; president, Charles B. Moulinier, Milwaukee; vice presidents, Sisters Mary Joseph, Rochester, Minn., and Mary Esperance, Minneapolis, and secretary-treasurer, Dr. Bernard F. McGrath, Milwaukee.

Registry of Donors of Blood for Transfusion.—Professor Agote of Buenos Aires, the pioneer in transfusion of citrated blood, recently published an appeal in the lay papers for donors of blood for transfusion. In the *Anales*, published from his service, he gives a list of more than 200 names of persons who have registered as willing to give blood for transfusion, when called on. In addition to this list, a large number of others have registered but prefer not to have their names published. The list includes all the officers of one regiment.

Bequests and Donations.—The following bequests and donations have recently been announced:

Columbia University and Presbyterian Hospital, New York City, each $610,345 by the will of Kate Collins Brown.

Loomis Sanitarium, Liberty, Ill., and St. Mary's Free Hospital for Children, New York City, each $1,000 by the will of Mary M. Irwin.

Presbyterian Hospital, Chicago, about $708,500 for the establishment of funds in memory of George B. and Mary R. Harris, by the will of George B. Harris. Only the income from this fund is to be used.

American Red Cross, a portion, not to exceed $25,000, of his contribution to the second war fund for medical research, by Cleveland H. Dodge, New York City.

FOREIGN

Dr. M. Hata given Rank of Major-General.—Dr. M. Hata of Japan has recently been promoted to the position of "Yakuzaikwan" with the rank of Major-General. In this position, it is understood, he becomes head of the pharmaceutical corps in the Japanese army. The Japanese correspondent writes that the creation of a generalship for pharmacists in the army sanitary department had for some time been a pending question, and at a meeting of the cabinet, March 22, it was decided to change the army pharmaceutical ordinance to suit the purpose.

Escape from Germany of Author of "Biology of War."—The Journal mentioned, Jan. 26, 1918, p. 252, that Dr. G. F. Nicolai, professor of physiology at the University of Berlin, had stated in his recent book, "The Biology of War," that he had been asked by a highly respected and prominent German official as to the feasibility of making bombshells so they would scatter cholera and plague germs. Nicolai mentioned this as one instance, among others, of the warping of the conceptions of scientists, military men and large circles of the populace to the effect that war justifies everything. The news item quoted from the *Observer* of Berne and the *Progrès Médical* of Paris that Professor Nicolai had been condemned to five months' imprisonment. Now an Associated Press dispatch of June 24 states that Professor Nicolai was one of the men who escaped from Germany last week in airplanes, landing in Denmark.

Honors for British Physicians.—In the list of honors published in Great Britain, June 3, numerous physicians were recognized for civil and military distinction. Among them were the following, some of whom are well known in this country: Companion of Honour—Sir Frederick Treves, Bt., G.C.V.O., C.B., K.C.B. (Civil)—Temporary Surgeon-General Humphry Davy Rolleston, C.B., R.N., C.B. (Military)—Temporary Major-Generals: Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., and Cuthbert S. Wallace, C.M.G. Colonels: Stuart Macdonald, C.M.G.; Edgar M. Pilcher, D.S.O.; Alexander Primrose, C. A. M. C.; Gerald T. Rawnsley, C.M.G.; Arthur E. Ross, C.M.G., C. A. M. C.; G. St. Clair Thom, C.M.G.; K.C.M.G.—Temporary Major-General Sir Berkeley G. Moynihan, C.B. Colonels: William H. Horrocks, C.B. (ret. pay); Sir William B. Leishman, C.B., F.R.S., K.H.P. Temporary Colonel Sir Ronald Ross, K.C.B., F.R.S. (ret. pay I.M.S.). G.C.V.O.—Lieut.-Gen. Sir Alfred Keogh, G.C.B., C.H. Knighthood—A. W. Mayo-Robson, C.B., C.V.O., F.R.C.S.; Harry Baldwin, M.R.C.S., Dental Surgeon to the King.

Patriotic Medical League in Italy.—The founding of the Unione dei Medici Italiani per la resistenza nazionale has been already mentioned in these columns. A general meeting was held recently with results, it is said, "worthy of the noblest traditions of the profession." One of the resolutions adopted suggested to physicians throughout the country and imposed on the members of the league "austere economy in the matter of those foods which are scarce at present, grains, meat, milk and sugar, the physicians themselves and the members of their families setting an example to others in this respect. No prescriptions or permits for food are to be given unless strictly for therapeutic necessities for the sick or delicate, specifying quantity and quality, enforcing a serene and uniform discipline for all in order to aid the country at large and the sick." Another resolution denounced in scathing terms some (apparently pacifist) utterances by certain colleagues, members of parliament, "at such a time as this when government and country need concerted action, unity of purpose, resistance for the enemy trampling the soil of Italy, destroying our brothers, mutilating our monuments and martyrizing our people." The league was founded to combat the insidious pro-German propaganda and by aggressive patriotic efforts by physicians and their families to spread their influence in widening circles.

Sanatogen and the German Chancellor.—The *Nederlandsch Tijdschrift* relates that some time ago—as was mentioned in these columns—the manufacture of sanatogen had to be suspended as, owing to the scarcity, the authorities shut off the supply of materials for it. The Sanatogen company then appealed to physicians throughout Germany asking for testimonials to the effect that "Sanatogen is an indispensable strengthening article for the sick and convalescents." The company hoped by this means to bring pressure to bear on the authorities so that the materials for the making of sanatogen would be allowed to be used for this purpose. The Reichskanzler, the authority in question, has now announced that demands for materials for this purpose are coming in at every turn, accompanied by the statements of physicians to the effect that the product of this manufacturing firm is admirably adapted to its purpose or indispensable. These declarations the chancellor continues, seem to be coming as the result of requests for them, and thereby it sometimes happens that physicians are remunerated for such declarations although perhaps not with money, yet with free supplies of the preparations in question. Our exchange comments on this as follows: "This is impressive testimony from the 'all-highest authority,' and, perhaps more than any admonitions in the medical press, it may induce willing physicians to be more cautious in giving full scope to their generous spreading abroad of testimonials." The chancellor's announcement further states that sanatogen, "notwithstanding the extensive advertising it has received—perhaps more extensive than has ever been made for an article of the kind—and also on account of its high price, has been declared by the experts in the advisory board of the Kriegsernährungsamt and the central board for the supply of fat as a preparation of albumin which is not necessary for the sick, but which, on the contrary, may be dispensed with. The imperial public health service (Gesundheitsamt) has also expressed the same opinion." The concluding paragraph of the chancellor's announcement stigmatizes the delivering of these attestations by the physicians in response to the request of the Sanatogenwerke as "injuring the respect for the medical profession."

Substitute Foods in Germany.—Schwalbe, the editor of the *Deutsche medizinische Wochenschrift*, has been appealing to the authorities to protect the public against injury from the newly invented substitutes for the ordinary foodstuffs. He demands that they be tested and not be allowed to be sold without an official permit. The Kriegsernährungsamt gives out information concerning them to the wholesalers and to the chemists engaged in food inspection, but this is no protection to the public, as the information in question is strictly confidential. The few fines imposed for serious infractions of the regulations in this line are of no help in the matter as the profits for the producers far outweigh the small fines imposed. The *Nederlandsch Tijdschrift*, in citing his communication on the subject, remarks that the judges, besides, are able to rely on the assertion of an expert authority, Dr. I. Hoppe, to the effect that a substitute article does not have to possess the nutritional value of the article for which it is a substitute. He says, "The opposite principle, namely, that we can substitute everything, is juster, and has besides high moral value, as it improves the morale, renders it easier to hold out, and guarantees victory." The German Association of Food Experts endorses this absurd principle. The insignificant influence of threats of punishment is seen in the number of these substitutes on the market. In November the figure had reached 7,000. Some of the German states have already introduced certain restrictions along the lines advocated by Schwalbe and also by Neustätter. In Baden, none of the substitute articles may be offered for sale without a permit. A sample of the article has to be presented with a certificate from some official inspecting board in regard to the composition of the article, or a fee of 50 marks be paid in case the investigation has to be done anew. The decision, whether favorable or unfavorable, is then published in the *Karlsruher Zeitung* at the expense of the applicant. The latter may then appeal to the minister of the interior. Noncompliance with the regulations may entail a penalty of six months' imprisonment or a fine, with exclusion from further trading. Similar regulations are in force in Würtemberg, Saxony and other states. In Saxony the net weight and the price of the article have to be specified on the label. It is further decreed that no use for advertising purposes may be made of the permission to sell the article. The Bundesrath has further regulated the sale of bouillon cubes. They may be sold as *Fleischbrühe*, "meat soup" or "bouillon," without the addition of the term "substitute," only when they contain meat extract or evaported bouillon, with salt, fat and extracts of vegetables, with at least 0.45 per cent. creatinin, and 3 per cent. nitrogen, and not more than 65 per cent. cooking salt, with no sugar or syrup. Even when labeled "substitute bouillon," they must contain at least 2 per cent. nitrogen and not more than 70 per cent. salt, without any sugar or syrup.

BUENOS AIRES LETTER

BUENOS AIRES, May 20, 1918.

Large Enrolment of Medical Students

The number of students enrolled in the medical department of the University of Buenos Aires is over 5,000. In 1917, there were 4,078 enrolled, distributed as follows: medicine 3,051, pharmacy 317, doctor in pharmacy 88, odontology 428, and obstetrics 194. Including the departments of law, engineering, philosophy and literature, agronomy and veterinary science, there are a total of 9,521 matriculated in the Universidad Nacional de Buenos Aires. There are only 984 inscribed in the medical department of the other university in the country, the University of Cordoba.

Reform in Management of the Cordoba University

The national government has modified the statutes of the University of Cordoba in accord with the general demand on the part of professors, students and graduates, giving them a more democratic orientation. The Academia will retain only its scientific functions, while the direction of the different departments of the university will be in the hands of a managing board for each. The members of these *consejos* are to be elected for a term of three years at a general assembly of all the professors.

Prophylaxis of Malaria

The newly appointed president of the Departamento Nacional de Higiene, Dr. G. A. Alfaro, has been visiting provinces affected with malaria, and has presided at *conferencias* held in the cities of Salta, Jujuy and Tucuman to determine the most practical ways and means for the combating of the malaria endemic.

The Cancer Institute

For lack of funds, work has had to be suspended on the Instituto del Cancer which is being constructed under the direction of the Academia de Medicina. Quite recently some donations have been received which allow the hope that the work can be resumed.

The Laryngologic Society

The Sociedad Argentina de Oto-rino-laryngologia held a special meeting, May 10, at which the subject of operations on the sinuses was discussed. Dr. Bracht presented a work on the endonasal operation for the maxillary sinus. Dr. Segura spoke on the treatment of disease of the sphenoidal sinus. His mode of access is by slitting the septum, by means of a submucosa resection, the same as for an operation on the pituitary body. This opens up the field amply and insures perfect drainage.

Personal

Dr. Pedro Benedit has been elected member of the Academia de Medicina to take the place left vacant by the death of Dr. P. Lagleyze. Dr. P. J. Hardoy, instructor in semeiology, and Dr. G. Valdes, instructor in surgery in the medical department of the University of Buenos Aires, have been elected regular professors after competitive tests.

LONDON LETTER

LONDON, June 4, 1918.

New Regulations for Military Medical Service

New regulations for military medical service have been issued, following the extension of age at which physicians are liable to 55 years. Special medical tribunals will be appointed for dealing with physicians. Certificates of exemption may be granted on the following grounds: (*a*) That it is expedient in the national interests that the physician should, instead of being employed in military service, be engaged in other work in which he is habitually engaged; or in which he wishes to be engaged; or, if he is being educated or trained for any work, that he should continue to be so educated or trained. (*b*) That serious hardship would ensue if the physician were called up for army service, owing to his exceptional financial or business obligations or domestic position. (*c*) Ill health or infirmity. (*d*) Conscientious objection to combatant service. A certificate of exemption may be absolute, conditional or temporary, as the medical tribunal thinks best suited to the case, provided that a certificate granted or renewed on personal grounds may be subject to the condition that the practitioner shall undertake such professional service and under such conditions as the director-general of national service may, after consultation with the medical tribunal and in concert with any government department concerned, from time to time deem best in the national interests. This includes civil medical service. Thus if the director-general of national service decides that there is a shortage of physicians in one district and that a physician can be spared from another, he may direct the physician to practice in the former district, or he may order him to undertake the work of a younger man who is called up for military service. When the need of using the physician in this way arises he may, if he chooses, appear before the local or central professional body and give reasons for not being assigned to the new duties required of him.

The Prevention of Anthrax

In spite of the precautions taken, the incidence of anthrax both in the warehouses and ports and in the worsted and woolen trades is increasing. A government committee, appointed to inquire as to the precautions for preventing infection in the manipulation of wool, goat hair and camel hair has just issued its report. The conclusion is that anthrax can be prevented only by preventing the disease among animals or by the destruction of the organisms in wool and hair. The committee, after careful experiments, has evolved a process by which the organisms may be destroyed. The essential features are: (1) A preliminary process in which material is submitted to the action of a warm solution of soap in water containing a little alkali, followed by squeezing through rollers. The effect is to cause disintegration of blood clots and the removal of all protection from spores, and to bring the latter into a condition in which they are susceptible to the action of disinfectants. (2) The disinfecting process in which material treated by the preliminary process is submitted to the action of a warm solution of formaldehyd in water, and again squeezed through rollers. Most of the spores are destroyed at this stage. (3) Drying, by which all the surviving spores are killed except in special circumstances. (4) Standing for a short time in order to insure the destruction of any spores which may, when exceptionally well protected, survive Stage 3. It is shown that the last two stages are largely in the nature of a safety factor. The experiments were carried out on a commercial scale, and the process causes no damage to the materials. Estimates were obtained of the cost of the necessary building and plant for the work, the committee being of opinion that the government should undertake it. The capital cost and equipment of a central station capable of disinfecting 10,000,000 pounds of wool annually would be $90,000, and the working cost, including depreciation and sinking fund, would vary from 1 to 1.5 cents per pound of untreated material. These figures were computed at prewar prices. About 75 per cent. would need to be added to meet present-day conditions, and manufacturers consider this reasonable.

The Food Situation

The decline of the submarine peril and the consequent arrival of supplies from abroad in greater quantity, especially the arrival of large quantities of American bacon, have considerably eased the food situation. The Sailors' Union and kindred bodies have agreed to a reduction in the statutory food scale to meet the present emergency in regard to meat. They have agreed that the meat ration shall be reduced by 50 per cent., subject to certain substitutes, principally bacon being provided. The following provision has been made for the supply of extra rations to expectant and nursing mothers: Expectant mothers may receive, on application in due form to the local food office, an extra ration during the last three months of pregnancy. This may consist either of two meat coupons per week or one butter coupon per week. In districts in which a milk priority scheme has been found necessary, they may also obtain a priority permit for 1 pint of milk daily during the same period. Nursing mothers will not themselves receive an additional ration, but are entitled to use the rations obtainable for the infant, namely, the ordinary child's weekly ration of meat, butter or margarin, and sugar, and in districts in which priority schemes are in force a priority certificate for 1½ pints of milk daily.

The Manufacture of Drugs Formerly Made in Germany

Before the war we were solely or almost solely dependent on Germany for a large number of drugs, and on the outbreak of hostilities a great shortage arose. Under the stimulus of the war, many British firms began experimenting with such success that first one drug and then another has been produced in satisfactory quantities. Among the first drugs to be

manufactured were salicylic acid and its compounds, which were begun in 1915, and by the middle of 1916 were produced in sufficient quantities. Atropin sulphate was the next drug. Other drugs, previously wholly or mainly German, now produced in this country are: absolute alcohol, butyl-chloral hydrate, paraldehyd, lactic acid, homatropin, phenacetin, saccharin, salol, tribromophenol bismuth (xeroform), potassium permanganate, procain and arsphenamin. The last two drugs are claimed to be chemically identical with those produced in Germany. It is true that, as in the case of American-made arsphenamin and neo-arsphenamin, some cases of poisoning have occurred, and some authorities have expressed doubt as to the safety of the new preparations. However, they do not appear to be less safe than their predecessors, for it has been repeatedly proved that their German introducers and advocates both overrated the therapeutic properties of these drugs and underrated their possible dangers.

PARIS LETTER

Paris, May 30, 1918.

Favorable Action of Venesection With Chest Wounds

Dr. G. Blechman called attention to the fact (Société médicale des hôpitaux de Paris) that in certain cases of chest wounds the blood pressure is very high, affecting particularly the maximal tension, and coincident with grave asphyxia. These were patients who, in consequence of a perforating wound of the lung, presented the ordinary complications of chest wounds, hemothorax, pneumohemothorax or, in some cases, signs of pulmonary edema. It seems paradoxical to bleed patients who are already enfeebled by a previous external or internal hemorrhage, but, nevertheless, in every case in which it was instituted, phlebotomy rapidly produced a favorable result. In one such patient, the withdrawal of 125 gm. of blood gave immediate relief, and within forty-eight hours the maximal blood pressure fell from 21 to 15. These observations likewise confirmed the value of systematic blood pressure examinations in the surgical ambulances.

Sorghum Sugar

The sugar shortage has increased the demand in Europe for finding an exotic plant which will relieve this condition. Professor Guignard has called attention to the fact that sugar can be obtained from sorghum (*Sorghum saccharetum*), originally a native of equatorial Africa, transplanted to Egypt and from there to India and China. In France, the Société d'acclimatation has been actively interested since 1850, but the sugar mills and sugar refineries of the North then were enjoying wonderful prosperity, and wine culture was such a great source of income to the people of southern France that they would not interest themselves in this new sugar plant. Now that the sugar refineries of the North have been destroyed, it will be to the interest of the farmers of the Midi to plant sorghum. The regions of the Mediterranean basin are well suited for this purpose, especially the lower valleys of the Rhône and Garonne, all of south and southeastern France, Corsica, Tunis, Algeria and Morocco (in the cold countries the plant will not mature).

Sown in May, the plant reaches maturity in October. M. Daniel Berthelot of the agricultural chemical analysis station at Meudon has on numerous occasions analyzed sorghum with reference to its saccharin content. The ordinary sugar or saccharose content increases steadily until October, when it is 14 per cent., comparing favorably with the sugar beet. At that time the taste of the pith is agreeable and frankly sweetish. Unfortunately, sorghum sugar cannot be crystallized like beet or cane sugar; this accounts for the meager commercial success of the plant. However, it is easy to extract a sweet juice from the stem by chopping it up fine and passing it through a domestic fruit press, using it as a syrup.

Activities of an Association During the War

The Association générale des médecins de France has not had a meeting since the beginning of the war, until recently. The secretary-general explained the activities of the council of the association, giving assurances of the usual functioning of the services of the association at this time of need, doing all in its power to conserve the interests of the mobilized colleagues. It rendered an account of the operations of the Caisse d'assistance médicale de guerre since its foundation. The subscriptions have amounted to 990,000 francs, of which more than 150,000 francs have been given to the physicians of the invaded territory and their families.

Classifying the Officers of the Service de Santé by Age and Dependents

The classification of physicians of the commissioned personnel of the army according to class, age and dependents was mentioned in a previous letter. It has now been decided that the number of children will be taken into account in classifying the officers of this service. For each living child one year will be taken off the classification; for instance, a member of the class of 1898 (40 years of age) who has three children will be placed in the class of 1895. Widowers with children will be allowed an additional year; that is, a widower member of the class of 1898 having three children will be placed in the class of 1894.

Personal

The Académie de médecine, May 28, elected to membership in the section of physiology, Prof. Jean-Paul Langlois; section of medicine, Prof. Charles Walther, president of the Société de chirurgie de Paris. Professor Brachet of Brussels was elected a corresponding member of the section on anatomy, succeeding the late Dr. Francotte. Dr. Fernand Bezançon was elected to membership in the section on medical pathology. Professor Pozzi, vice president of the Académie, Prof. Pierre Marie and Dr. Thibierge have been appointed members of the Commission supérieure consultative du Service de Santé militaire. Dr. Follet has been appointed director of l'Ecole de plein exercice de médecine et de pharmacie de Rennes. At the meeting of April 30, the Académie de médecine elected Dr. A. A. Souques a titular member of the medicopathologic section in Fournier's vacant place. Dr. Souques, médecin des hôpitaux de Paris, received fifty-three of the fifty-six votes cast.

Institution of Three Meatless Days

The reduction in the supply of frozen meat and the difficulties that surround the requisition of cattle necessary for provisioning the army have forced the minister of agriculture and the food commissioner to renew the restrictions that instituted the three meatless days. On and after May 15, until a date to be fixed later, the sale or placing on sale of fresh, frozen, salted, prepared or conserved meats is forbidden on Wednesday, Thursday and Friday of each week. It is also forbidden to serve meats or meat dishes in any form or with any proportion of meat on these days in hotels, restaurants, buffets, cafés, *cercles*, etc. Meats are defined as butcher's meats (beef, veal, mutton, goat), pork, sausages and tripe in every form; poultry, rabbits and game. However, these restrictions do not apply to horse meat, which may be sold on these meatless days, but only by the butchers who sell such meat exclusively.

Nor do these restrictions apply to the meats destined for the troops even in the zone of the interior. Nor does it apply to the canteens and refectories of the factories and industrial establishments whose clientele consists exclusively of working people, to places of instruction, or to the sick treated at home or in hospitals and sanatoriums for whom a meat diet is ordered. The directors of these establishments will make known each week to the mayor the number of consumers for whose needs they must provide so that the proper quantity of meat can be delivered to them during the meatless days. This quantity must not exceed 300 gm. per person per day. The food commissioner hopes that he will be able to furnish during these meatless days, in some measure, substitutes, such as dried legumes and *pâtes alimentaires* (spaghetti, macaroni, etc.).

Honor for Gen. Leonard Wood

On the occasion of the return to America of Major-General Wood, who was the first American to be wounded on the French front, the medical students of the Faculté de médecine of Paris sent him the following resolution: "The medical students of the Faculty of Paris and the special students in the course of parasitology, filled with admiration and regard for Major-Gen. Leonard Wood, doctor of medicine, by reason of the fortunate initiative taken by him at Havana in the fight against yellow fever and of the salutary measure which he ordered taken, thanks to which this formidable scourge was completely suppressed, salute him as one of the most eminent promoters of modern hygiene and as a benefactor of humanity. They acclaim in his person the American army which has come to France to defend the right and civilization, and they hope for the speedy cure of the glorious wound which he received on the French front."

Deaths

Gwilym George Davis, Philadelphia; University of Pennsylvania, Philadelphia, 1879; aged 60; M. R. C. S. (Eng.), 1880; a Fellow of the American Medical Association; American Surgical Association, College of Physicians of Philadelphia, and American Academy of Medicine; a member of the American Orthopedic Association; associate professor of applied anatomy in his alma mater from 1900 to 1911, and professor of orthopedic surgery from 1911 to the time of his death; orthopedic surgeon to the Philadelphia General Hospital from 1902; surgeon to the Orthopedic, St. Joseph's, Episcopal and German hospitals; chief surgeon of the Widener School for Crippled Children; chairman of the executive committee of the North American Children's Sanitarium, Ventnor; died at his camp in Kineo, Me., June 16, from pneumonia.

Alexander François Liautard, Bois Jerome, France, formerly of New York City; New York University, New York City, 1865; aged 83; one of the pioneers of veterinary medicine in America; founder of the first veterinary college in the United States, and formerly dean of the New York College of Veterinary Surgery; one of the organizers and for many years president of the New York Veterinary Association; honorary fellow of the Royal College of Veterinary Surgeons, England, and corresponding member of the Central Veterinary Society of Paris; died at his home, April 20.

Joseph Cyrus Stedman, Jamaica Plain, Boston; New York University, New York City, 1890; aged 51; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for several years surgeon to Faulkner Hospital, Jamaica Plain; formerly first lieutenant and assistant surgeon, First Regiment Heavy Artillery, Mass. V. M.; who had been in the South all winter on account of failing health; died in Johns Hopkins Hospital, Baltimore, June 14, from heart disease.

Frank Chase Richardson, Boston; Boston University, 1879; Hahnemann Medical College, Philadelphia, 1880; aged 58; registrar and professor of clinical neurology and electrotherapeutics in his alma mater; neurologist to the Massachusetts Homeopathic Hospital, and clinical director of the Evans Memorial Department of Clinical Research and Preventive Medicine; died at the summer home of Dr. Nathaniel Emerson, Duxbury, Mass., from neuritis, June 20.

M. Osborne Christian, Irvington, N. J.; Howard University, Washington, D. C., 1878; aged 69; for several years a member and more recently president of the board of trustees of Irvington, and for several terms a member of the board of freeholders; for many years an employee of the Geological Survey Bureau, Washington; died at the home of his daughter in South Orange, N. J., June 15, from cerebral hemorrhage.

Charles C. Allison, Omaha; Kentucky School of Medicine, Louisville, 1888; aged 52; a Fellow of the American Medical Association; professor of principles, and practice of surgery and clinical surgery in the John A. Creighton Medical College, Omaha; chief surgeon of St. Joseph's, Wise, Presbyterian and St. Catherine's hospitals; died at his home, June 19, from asthma.

Floyd Willis Lockwood, South Lyon, Mich.; Detroit College of Medicine and Surgery, 1909; aged 32; at one time a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, June 15, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent.

Fayette Watt Birtch, San Francisco; Cooper Medical College, San Francisco, 1907; aged 41; a Fellow of the American Medical Association; professor of surgery in the University of California; resident physician in St. Luke's Hospital, San Francisco; died in San Jose, June 14, from disease of the throat.

Daniel Joseph Finegan, Gloucester, Mass.; Tufts College Medical School, Boston, 1902; aged 49; a Fellow of the American Medical Association; formerly medical examiner (coroner) of Essex County, and city physician of Gloucester; died in the City Hospital, Gloucester, June 15, from heart disease.

John T. Milnamow, Chicago; Northwestern University Medical School, 1882; aged 63; a Fellow of the American Medical Association; attending physician at St. Anne's Sanitarium and Hospital, Chicago, and president of the attending staff; died at his home, April 22, from anemia.

John W. Dean, Maryville, Wis.; Rush Medical College, 1863; Jefferson Medical College 1864; aged 76; a member of the State Medical Society of Wisconsin; a well known breeder of fine cattle; died at the home of his daughter in Plattsmouth, Neb., June 12, from heart disease.

Charles Conely Hendrick, New York City; Bellevue Hospital Medical College, 1894; aged 55; formerly medical health inspector of Hudson County, N. J., and acting assistant surgeon, U. S. Army; also an attorney; died suddenly in Dunellen, N. J., June 26, from heart disease.

John Moroney, Auburn, N. Y.; Long Island College Hospital, Brooklyn, 1874; aged 66; a Fellow of the American Medical Association, and a specialist in diseases of the eye, ear, nose and throat; died at his home, May 23, from carcinoma of the pancreas.

Lieut. William Edward Emery, M. R. C., U. S. Army, Bangor, Me.; Dartmouth Medical School, Hanover, N. H., 1914; aged 28; a Fellow of the American Medical Association; on duty at Fort Oglethorpe, Ga.; died at that post, June 11, from meningitis.

James L. Smith, Selmer, Tenn.; Memphis (Tenn.) Hospital Medical College, 1888; aged 68; at one time a member of the Tennessee State Medical Association; for more than forty years a practitioner of McNairy County; died at his home, June 12.

William T. Maffit, Chicago; Jenner Medical College, Chicago, 1903; aged 52; a member of the Illinois State Medical Society, and a member of the staff of St. Mary of Nazareth Hospital; died at his home, June 22, from pneumonia.

William Abbott Nason, Algonquin, Ill.; Northwestern University Medical School, 1866; aged 77; a Fellow of the American Medical Association and Fox River Valley Medical Association; died at his home, June 10, from senile debility.

Joseph Longworth Nichols, Saranac Lake, N. Y.; Johns Hopkins University, Baltimore, 1897; aged 42; who went to Saranac Lake on account of his health about twenty years ago; died at his home, June 18, from tuberculosis.

Amy C. Belot Monti, Hollis, Kan.; Kansas Medical College, Topeka, 1911; aged 38; at one time a member of the Kansas Medical Society; died in Phoenix, Ariz., April 27, from septicemia, following an infection of the finger.

Henry Abbott Winter, Saybrook, Ill.; Rush Medical College, 1873; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War, and a practitioner for fifty-two years; died at his home, May 21.

George W. Stranahan, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, Mo., 1892; Chicago Homeopathic Medical College, 1895; aged 62; died in a sanatorium in St. Joseph, June 12, from cerebral hemorrhage.

Julius Christian Voje, San Francisco; Cooper Medical College, San Francisco, 1894; aged 59; at one time a member of the Medical Society of the State of California; died at his home, June 18, from cerebral hemorrhage.

John W. Clark, Fristoe, Mo.; St. Louis College of Physicians and Surgeon, 1892; aged 55; a member of the Missouri State Medical Association; fell dead in his store in Fristoe, April 20, from cerebral hemorrhage.

William Lewis Schoales, St. Clair, Mich.; University of Michigan, Ann Arbor, 1878; aged 64; a Fellow of the American Medical Association; died at his home, May 28, from acute dilatation of the heart.

John Senn, Williamsport, Pa.; College of Physicians and Surgeons, Homeopathic, Buffalo, 1882; aged 71; a Fellow of the American Medical Association; since 1872 a clergyman; died at his home, June 17.

Granville Bell Harvey, Elkins, W. Va.; University of Maryland, Baltimore, 1877; aged 69; for several years a practitioner and druggist of Philippi; died in the Davis Memorial Hospital, Elkins, June 15.

James R. Holgate, Wyoming, Ill.; Rush Medical College, 1869; aged 77; at one time a member of the Illinois State Medical Society; died in a sanatorium in Kansas City, June 16, from pneumonia.

John Howard Bowser, Syracuse, Ind.; Medical College of Indiana, Indianapolis, 1885; aged 58; a member of the Indiana State Medical Association; died at his home, June 17, from angina pectoris.

John C. McCullough, McMechen, W. Va.; Medical College of Ohio, Cincinnati, 1881; aged 69; health officer of McMechen; died at his home, June 20, from pneumonia.

Robert Simpson, Philadelphia; University of Pennsylvania, Philadelphia, 1874; aged 75; a veteran of the Civil War, in which he served both in the Army and Navy; died at his home, June 18.

Albert Edson Stafford, Whitesboro, N. Y.; Syracuse (N. Y.) University, 1901; aged 41; a Fellow of the American Medical Association and health officer of Oneida County; died at his home, recently.

William T. McAvoy, Brooklyn; Bennett Medical College, Chicago, 1913; aged 37; formerly a member of the staff of the Swedish Hospital, Brooklyn; died at his home, June 21.

S. M. Matthews, Moultrie, Ga.; Hospital College of Medicine, Louisville, Ky., 1883; aged 84; died at the home of his daughter in Berlin, Ga., May 22, from senile debility.

Porter Harman Carpenter, Los Angeles and Monrovia, Calif.; State University of Iowa, Iowa City, 1910; aged 39; died in Los Angeles, May 25, from tuberculosis.

Jonathan R. Downing, Yorktown, Ind.; Medical College of Indiana, Indianapolis, 1878; aged 73; a veteran of the Civil War; died at his home, June 21, from dropsy.

James S. Owens, Los Angeles, and Ocean Park, Calif.; Hahnemann Medical College, Chicago, 1870; aged 62; formerly of Chicago; died at his home, June 16.

Peter Conroy, Charlottetown, P. E. I.; Laval University, Montreal and Quebec, 1878; aged 63; died at his home in March from pneumonia.

Joseph Brown Wheatley, Greensburg, Ind.; aged 84; who retired from practice many years ago; died at his home, May 17, from senile debility.

George C. Gilmer, Big Stone Gap, Va.; Medical College of Virginia, Richmond, 1873; aged 72; died at his home, June 13.

Albert E. Gesler, Saranac, Mich.; Pulte Medical College, Cincinnati, 1877; aged 68; died at his home, June 15.

Marriages

MAJOR JOHN BURR PIGGOTT, M. R. C., U. S. Army, Washington, D. C., on duty at Fort Oglethorpe, Ga., to Miss Alice Francis Bell of New York City, at Fort Oglethorpe, June 18.

LIEUT. LOUIS JAY GOLDBLATT, M. R. C., U. S. Army, McKeesport, Pa., on duty at Hospital, Port Newark Terminal, Newark, N. J., to Miss Charlotte Roslyn Fagin of Philadelphia, June 16.

LIEUT. STUART HOWARD BOWMAN, M. R. C., U. S. Army, Maquoketa, Iowa, on duty at Camp Meade, Md., to Miss Bess C. Moses of Albany, N. Y., at Washington, D. C., recently.

LIEUT. LOUIS DWIGHT BARNES, M. R. C., U. S. Army, Lanesboro, Mass., on duty at Camp Wadsworth, Spartanburg, S. C., to Miss Mildred Wilberta Pruden, at Lanesboro, June 19.

JOSEPH HANNOLD MCELHINNEY, Palm City, Calif., to Mrs. Ellen M. Healy of Greenwich, Ohio, at San Bernardino, Calif., June 11.

LIEUT. ARTHUR MERRILL SHAEFFER, M. R. C., U. S. Army, Lancaster, Ohio, to Miss Anna Lou Hyde of Columbus, Ohio, June 27.

CAPT. WYNAND VAN KORLAAR PYLE, M. R. C., U. S. Army, Detroit, to Miss Helene Aldworth of Grand Rapids, Mich., June 22.

LIEUT. REED ALBERT SHANK, M. R. C., U. S. Army, Cincinnati, to Miss Melda Hatfield of Welch, W. Va., September 4.

LIEUT. JOHN HESS FOSTER, M. R. C., U. S. Army, Boston, to Miss Helen Odiorne Thomas of Farmington, Me., June 21.

P. A. SURG. CHARLES JOSEPH HOLMAN, U. S. Navy, to Mrs. Priscilla Maddox Meyer, at Roland Park, Baltimore, June 19.

CLAUDE LORRAINE LARUE, Boulder, Colo., to Miss Ursie Bollinger of Shreveport, La., at Denver, June 11.

WILLIAM TODD FERNEYHOUGH, Carlin, N. J., to Miss Rena Crumm of Arlington, Md., at Baltimore, June 19.

SURG. BENJAMIN W. BROWN, U. S. P. H. S., to Mrs. Lizzie Faison Lanbeth, at Charlotte, N. C., May 15.

LIEUT. JOHN B. FARRION, U. S. N. R. F., Portland, Ore., to Miss Marie Boylston of Chicago, recently.

CLYDE HITESHUE CABLE to Miss Bernice Rowe, both of Cleveland, at Canton, Ohio, recently.

CLAYTON GRUBE STADFIELD to Miss Anna Meda Sprotte, both of Los Angeles, June 12.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HENRY SMITH WILLIAMS AND "PROTEAL THERAPY"

To the Editor:—Will you please advise as to the success and safeness in using the Proteal treatment for tuberculosis by Henry Smith Williams, M.D., LL.D., 104 East 40th Street, New York?

C. P. BURCHARD, Alamogordo, N. M.

To the Editor:—Kindly send me any available information on "The Proteal Treatment for Cancer." An article by Dr. Henry Smith Williams, 120 West 32 Street, New York City, in April *Hearst's* has caused relatives to request its use in a case of carcinoma of the liver under my care.

M. M. REPPARD, Middlebourne, W. Va.

To the Editor.—I am enclosing a leaflet, mailed to me on request, by Dr. Henry Smith Williams of New York City, who published a series of articles during the last year in *Hearst's Magazine* on "Proteal Therapy." If you have investigated this man and his proteal treatment, I should like to know the result of your findings. I am a consumptive and am, therefore, particularly interested in its alleged benefactions for the treatment of tuberculosis.

MICHAEL A. LONG, Glen Lake Sanitarium, Hopkins, Minn.

To the Editor.—What information can you give me regarding Henry Smith Williams, M.D., LL.D., 104 East Fortieth street, New York, and the therapeutic value of the "Proteal Therapy" that he has originated?

M. D. BAKER, M.D., San Jose, Calif.

The above letters are selected from many received on the subject. Henry Smith Williams is better known in the journalistic world than in the field of scientific medicine. He was graduated by the Chicago Medical College in 1884. In the thirteen issues of medical directories of the United States that have been published during the past thirty years Dr. Williams' name does not appear—except for the issues of 1890 and 1893—until the 1914 edition. So far as we have been able to find, Dr. Williams had not until 1915 contributed any articles to medical journals. The catalog of the Surgeon-General's Library contains no reference to any articles of Dr. Williams except those that have appeared in popular magazines. The volumes of the *Index Medicus* from 1907 until 1914, inclusive, also contain no references to any articles by him in medical journals. THE JOURNAL's author-index to current medical literature from 1900 until 1914, inclusive, fails to record any articles by Dr. Williams in medical journals. Dr. Williams' articles, however, in popular magazines have been voluminous and numerous. Sometimes his articles have been under his own name and sometimes under the *nom de plume,* "Stoddard Goodhue, M.D." Under the latter name the *Cosmopolitan* published articles on "Adding Years to Your Life," "Battle of the Microbes," "Do You Choose Your Children?" and "What is the Matter With Your Brain?" Under his own name articles have appeared in popular magazines on such subjects as "Burbank's Way With Flowers," "Every Woman Her Own Burbank," "Why Not Live Forever?" "Science of Breeding Kings," "New Cancer Treatment," "New Hope for Rheumatism Sufferers," etc. In addition, Dr. Williams has published books on such subjects as "History of the Art of Writing," "Historians' History of the World," "Story of Nineteenth Century Science," "Luther Burbank," "Twilight Sleep" and others. The Goodhue Company of New York City, which publishes some of Dr. Williams' books has, we understand, for its president, Dr. Henry Smith Williams, for its vice president, Dr. William's wife and for its secretary-treasurer, Dr. Williams' daughter.

Readers of THE JOURNAL will remember the publicity given in 1915 and 1916 to an alleged treatment for cancer, sometimes called the "Horowitz-Beebe Autolysin Treatment." The method was heralded widely both in a certain portion of the medical press and in popular magazines and newspapers. A popular article by Henry Smith Williams on "The New Cancer Treatment" appeared in the *Illustrated World* for October, 1915, with pictures of Dr. Horowitz, Dr. Beebe, etc. A month or two later physicians received, gratis, from the

Goodhue Company a neatly bound little book on "Alcohol Hygiene and Legislation," by E. H. Williams, M.D. (brother of Henry Smith Williams). Enclosed with it was a letter from the Goodhue Company asking physicians to accept the book. The body of the letter was devoted to calling the attention of physicians to an "important work" by Dr. Henry Smith Williams on "The Autolysin Treatment of Cancer" that the Goodhue Company was publishing. With the letter, there was a small advertising pamphlet "Issued by the Autolysin Laboratory" and advertising that product. In addition, the last thirteen pages of the book on "Alcohol Hygiene" contained advertisements of the Goodhue Company's publications with particular emphasis (four pages of it) on the "Autolysin Treatment of Cancer," by Henry Smith Williams.

In May, 1917, physicians in the West received a letter from the "Ellison-White Chautauqua System" informing them that Dr. Henry Smith Williams was to lecture at "your Chautauqua" and reminding them that "he has recently issued two volumes, 'The Autolysin Treatment of Cancer' which he believes will be his greatest contribution to medical science." The present "Proteal" treatment appears to be a modification of the "Autolysin" treatment. Dr Williams, in attempting to justify the use of his "Proteal" in tuberculosis, cancer, rheumatism, etc., takes advantage of certain investigations bearing on the nonspecific reactions resulting from the parenteral injection of foreign proteins. So far as we can discover, there is no scientific evidence to indicate that the "Proteal" treatment expounded by Williams is of value in the treatment of cancer, tuberculosis or the other numerous diseases for which the "Proteals" are recommended.

It is a question whether such articles as those on "The Proteal Treatment of Cancer," "New Hope for Rheumatism Sufferers," etc., published in popular magazines or newspapers serve any useful public purpose. May they not, on the contrary, by raising false hopes, cause much mental suffering and do scientific medicine great harm?

OPHTHALMOL-LINDEMANN

Report of the Council on Pharmacy and Chemistry

Ophthalmol-Lindemann was taken up for consideration by the Council because of inquiries received. The following report, declaring Ophthalmol inadmissible to New and Nonofficial Remedies, was adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

Ophthalmol-Lindemann (Innis, Speiden and Co., New York) is advertised as a treatment for eye diseases by "hyperemia." The circular advertising the product is written somewhat in the style of "patent medicine" advertisements. It contains testimonials of dubious value. The principle underlying the use of Ophthalmol is that employed to a considerable extent by ophthalmologists, through the use of ethylmorphin ("dionin"), etc., viz., the production of conjunctival irritation in inflammatory eye diseases. Ophthalmol is, therefore, merely a special agent for the production of such ophthalmic irritation.

The advertising circular contains no evidence that Ophthalmol is in any respect superior to the established agents for producing conjunctival hyperemia. On the other hand, there are obvious objections to the use in the eye of a substance of unknown and apparently indefinite composition and uncertain activity. Ophthalmol is said to be an oily solution of "glandular extract of the fish Cobitis Fossilis." *Cobitis fossilis* is a small fish said to be common in Germany. According to Kochs, who analyzed Ophthalmol (*Arb. a. d. Pharm. Inst. d. Univ. Berl.*, 1907, **4**, 140), this fish is popularly believed to predict weather, but medical virtues are not ascribed to it. This "fishy" extract is indefinite, to say the least.

The activity of the preparation is described by the manufacturer thus: "It seems probable that the typical action of Ophthalmol is due to certain organic acids which may have formed during manufacture through the decomposition of protein bodies contained in the crude material." The profession is not told whether this important decomposition is, or, in fact, can be controlled so as to produce a material of uniform activity.

Kochs concluded from his analysis that Ophthalmol had the properties of rancid olive oil containing about 6 to 7 per cent. mineral oil. The oil contained no nitrogen, left no ash on ignition and though traces of iodin were claimed to be present, no iodin could be found.

It is recommended that Ophthalmol be rejected first, because the use in the eye of an irritant of secret composition and uncertain activity is unscientific and against the interest of public health; second, because Ophthalmol is of secret composition (the composition claimed being practically meaningless), and, third, because no evidence has been submitted to substantiate its claimed superiority over established methods of treatment. The Council declared Ophthalmol inadmissible to New and Nonofficial Remedies.

Correspondence

PARAFFIN PAPER FOR SURGICAL DRESSINGS

To the Editor:—Comment on the article on paraffin paper for surgical dressings by Dr. Charles M. Harpster, Toledo, Ohio, in THE JOURNAL for June 8: I tried this method of dressing wounds in 1908 and discarded it because of the imperforate character and allowing poor drainage. I found, however, that if this wax paper was perforated every quarter of an inch with a No. 4 eyelet punch (which can be bought very cheap in any hardware store and some twenty thicknesses of paper can be perforated at one punch) it served the purpose admirably. I reported my experience at the meeting of the American Association of Railway Surgeons in October, 1910. This perforated paper has been used very extensively in the Youngstown Hospital and is a cheap and durable dressing. It allows ample drainage and ample protection to granulation and is not removed from the wound until the wound is healed, unless it becomes loosened.

I began using it only for burns, but during all of these years we have used it on all kinds of granulated wounds.

I trust that this may add a little more to our war methods.

C. C. BOOTH, M.D., Youngstown, Ohio.

A PLEA FOR THE GENERAL ADOPTION OF A PLAN OF HOSPITAL ORGANIZATION THAT WILL RELEASE COMPETENT PHYSICIANS FOR ARMY SERVICE

To the Editor:—The United States is now in the war. The nation is getting its stride. The changes and readjustments that are required for the effective conduct of the war are difficult, and are becoming more difficult every day, but they are never impossible. Of necessity, the business of the country has been reorganized; the same imperious necessity calls for the reorganization of the civil hospitals.

Up to the present time, the enrolment of medical men has kept pace with the Army's growth. But a million Americans have now taken their place in the fighting line; ships are available for the rapid transportation of a second million; a third million is streaming into the training camps, and more doctors are needed. The hospitals of the country must help to furnish them—they can if they will.

By undertaking to retain in its service only the actual number of men required to care for its patients, the hospitals can at once release a large number of physicians for Army service. *Every hospital that has not already done so should at once place its staff on a war footing by abolishing the rotating service.*

What is the rotating service? It is a plan of organization which requires or permits two, three, four, or even six men, each serving six, four, three, or perhaps only two months, annually, to hold down one man's job. There may be reasons of educational policy which justify a rotating service in ordinary times; today any such plan is contrary to the national

interest and is self-condemned. In this crisis no plan of organization is admissible which does not release every competent physician who can be spared for military duty. No man should be permitted to excuse himself from entering the Medical Reserve Corps on the plea that a hospital needs him, unless his presence in that hospital is indispensable—not two, three, or four months in the year, but all year.

For the period of the war the rotating service must go. The continuous service plan is the only patriotic plan of hospital organization at this time. *One job, one man!* It is the duty of hospital authorities to adopt this plan now, and to make it plain to the men who are thus released from hospital service for the period of the war, that the purpose of their release is to make it easier for them to decide where the path of duty lies.

S. S. Goldwater, M.D., New York.
Chairman, War Service Committee, American Hospital Association.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MILITARY ELIGIBILITY OF THOSE BLIND IN ONE EYE

To the Editor:—1. If a physician has an artificial eye, is he in your opinion eligible for the Medical Reserve Corps?
2. Could one so afflicted be used in any branch of the service?

R. W. Chapman, M.D., Newark, N. J.

Answer.—1. A physician with only one eye is not eligible for a commission in the Medical Reserve Corps of the Army.
2. According to the new standards of physical examination governing the entrance to all branches of the Army: Those with blindness in one eye, with normal vision in the other eye without glasses, may be accepted for special or limited military service. As to just what this service would involve, we cannot state.

YOHIMBIN—ELECTRARGOL

To the Editor:—Please tell me the present opinion concerning: (1) yohimbin as an aphrodisiac, and (2) electrargol in infections, rheumatism in particular, both acute and chronic. Please omit my name.

X. Y. Z.

Answer.—1. During recent years very little has been written regarding the use of yohimbin as an aphrodisiac. We believe that the use of the drug has been generally abandoned.
2. Electrargol is a colloidal suspension (commonly called colloidal solution) of silver (see New and Nonofficial Remedies, 1918, p. 367). Little or nothing has been published recently concerning the use of colloidal silver preparations in the treatment of rheumatism. We believe that in general its use has been abandoned, despite the occasional favorable reports which were published some years ago. We give below a list of references to literature on these subjects:

Gardner, H. T.: Notes on Yohimbine, *Pharm. Jour.*, 1909, **28**, 184.
Williamson, J. R.: Yohimbine as an Aphrodisiac, *New York Med. Jour.*, 1901, **74**, 709.
Denman, R.: Electrargol in Smallpox and Plague, *Brit. Med. Jour.*, June 6, 1914.
Denman, R.: Electrargol in Smallpox, *Brit. Med. Jour.*, Oct. 11, 1913.

ABSORPTION OF NICOTIN BY COTTON

To the Editor:—In your opinion, does absorbent cotton placed in a cigar holder prevent the passing of nicotin to the smoker?

Alfred LaBine, M.D., Houghton, Mich.

Answer.—Yes.

MARIHUANA, SYNONYM FOR CANNABIS INDICA

To the Editor:—Please publish information as to what maruhuana (or marajuana) is, and its effects. What relation does it bear to cannabis indica?

H. W. Yemans, Major, M. R. C.

Answer.—We can find no reference to "maruhuana" or "marajuana" in available works dealing with drugs. According to Squire's "Companion to the British Pharmacopeia" (Edition 19, 1916) marihuana is a synonym in the Mexican Pharmacopeia for cannabis indica. The same name is also mentioned as a synonym for cannabis indica in "Plant Names," by A. B. Lyons (Edition 2, 1907).

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 9. Chairman, Dr. S. W. Welch, State Capitol, Montgomery.

Connecticut: New Haven, July 9-10. Sec. Regular Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 728 State St., Bridgeport; Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, July 9-11. Sec., Dr. E. P. Copeland, The Rockingham, Washington.

Massachusetts: Boston, July 9-11. Sec., Dr. W. P. Bowers, Rm. 501-1 Beacon St., Boston.

Oklahoma: Oklahoma City, July 9-10. Sec., Dr. J. J. Williams, Weatherford, Okla.

Pennsylvania: Philadelphia and Pittsburgh, July 9-13. Sec., Mr. N. C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, July 11. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Deadwood, July 9. Sec., Dr. P. B. Jenkins, Waubay.

West Virginia: Wheeling, July 9. Health Com., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Colorado April Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 2, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 8, including 3 osteopaths, passed, and 4, including 2 osteopaths, failed. One candidate, an osteopath, was caught cheating. One candidate was refused a license, 1 candidate refused to appear before the board, 1 candidate failed to appear before the board and 1 candidate withdrew his application. Ten candidates were licensed on credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1916)	85.4
Tulane University		(1908)	*
Kansas City College of Medicine and Surgery		(1917)	77.2
Washington University		(1906)	*
University of Cincinnati		(1912)	75.3
	FAILED		
Baltimore University		(1897)	68.2
Eclectic Medical Institute		(1908)	38.6

* No grade given.

College	LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed
University of Arkansas		(1901)	1
Columbian University		(1897)	1
Northwestern University		(1902)	1
Rush Medical College		(1916)	1
Tufts College Medical School		(1912)	1
Michigan College of Med. and Surg.		(1904)	1
Washington University		(1906)	1
University of Nebraska		(1916)	1
University of Oklahoma		(1913)	1
Vanderbilt University		(1886)	1

Idaho April Examination

Dr. Ray H. Fisher, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Pocatello, April 2-3, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1911)	85
Rush Medical College		(1897)	75
College of Physicians and Surgeons, Keokuk		(1893)	75
Lincoln Medical College		(1904)	75
Columbia University		(1918)	83

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine		(1894)	Colorado
Rush Medical College		(1891)	Oregon
University of Kansas		(1912)	Oregon
Kentucky School of Medicine of Louisville		(1906)	Washington
St. Louis University		(1905)	Washington
Willamette University		(1907)	Oregon
Hahnemann Med. Col. and Hosp. of Philadelphia		(1903)	Washington
Jefferson Medical College		(1908)	Utah

Book Notices

THE PSYCHOLOGY OF CONVICTION. A Study of Beliefs and Attitudes. By Joseph Jastrow, Professor of Psychology in the University of Wisconsin. Cloth. Price, $2.50 net. Pp. 387. Boston: Houghton, Mifflin Company, 1918.

This book contains essays contributed by the author to various publications during the past year, as well as others especially prepared for this volume, the whole forming a coherent series. The psychology is pragmatic; the problems discussed are those of the everyday life of the moment. It is a demonstration of clear thought applied to the beliefs of the public. The author displays an intensive knowledge of medical science, and information such as is demonstrated by few of the collegians who specialize in the related sciences.

The present volume is an analysis of the credulity and opinion of the public. It is important as defining the growth of that public opinion, which it analyzes as "outgrown beliefs which still linger in strange persistence, popular beliefs in conflict with expert conclusion and the varied range of controversy in which protagonists contend for opposite verdicts upon much the same though differently selected evidence." Relative to the motives for the war the author says:

> The world war has shaken convictions and made necessary an examination of foundations, and a fundamental inquiry into the basis of those values that keep endeavor keen and civilization alive. In such times we learn to cherish with an increasing fervor the convictions that sustain our national and our individual being. The shock to men's minds has been as serious as to their senses. That German minds could think as they do seems even more amazing than that German hands should be so infamously polluted with crime. The assault upon reason has been as savage and as deadly as the violation of law, of morality, of decency, of honor, of humanity. The intellectual violation is the more responsible, since by its nature it emanates from the trained leaders, those by calling competent and vowed to the defense of the value of right thinking.

In considering the line of thought to be followed by the public mind during the war, Professor Jastrow makes this comment relative to the attitude of the antivivisectionists toward the Red Cross:

> War time demands that minor differences of opinion be set aside in favor of an indispensable unity of action; and by the same token it demands that no portion of the community be estranged from the common cause by a hostile attitude toward tenets and principles which in time of peace have contributed to the moral capitalization of the nation. Still more bindingly the same obligation rests upon advocates of views (in whatever field of opinion) which the majority regard as false and dangerous, but which under ordinary conditions are accorded a tolerant hearing, though equally a vigorous protest under approved principles of controversy. A flagrant violation of this tolerance appears in the suit instigated by the antivivisectionists against the Red Cross organization to prevent the use of funds in the interests of medical research; and by that means, to mitigate the sufferings and save the lives of the victims of war. To push a private prejudice against a public interest at this time and in this manner is an ignorant, obstinate, and malicious attack, inhumane and unpatriotic even though sincere; it is a tragic demonstration of the menace that lies in unreason. Though exceptional, the instance should be used to strengthen the forces of reason and loyalty.

The first chapter is on the subject of the work, the psychology of conviction, introducing the method of study and the basic principles underlying the human belief and credulity which are most closely considered in the second chapter. In this chapter the author analyzes the developments of various medical beliefs, as, for example, homeopathy. His study pends largely on the essay of Dr. Oliver Wendell Holmes, "Homeopathy and Its Kindred Delusions." Numerous cases are cited as to the enormous credulity of the too easily convinced public. It is here that the author first considers the inconsistency of Christian Science:

> To complete the collection of types of credulity, we should have an instance in which a system of interpretation of facts—not a mere narrative—in itself startling and contradictory to ordinary experience, gains widespread credence, and that in spite of pronounced inconsistency with verifiable observation and common sense. These conditions are remarkably well satisfied by the recent promulgation of the doctrines of Christian Science. Even in this field of intellectual effort, the land of the free and the home of the brave has contributed an article worthy to compete with the foreign product. Eagle-like, this system spreads its wings and soars free from the bonds of sense or earth-bound realities, free from human logic and the errors of mortal mind, free from the material impediments which nature has inconsiderately set in our paths, free to make things so by thinking them so, free to set method and learning and experience at naught. And surely it calls for courage of no common order to resist the seductive appeals of eye and ear, to sail steadily on heedless of the calls of sirens of rationality, convinced at the outset that things cannot be as they are, and refusing the nod of recognition to the plebeian idols of the ills of flesh. It is not necessary in this connection to recount the beliefs of this system; it is sufficient to point out that when thousands of intelligent persons give practical adherence to, and enroll themselves under the banner of one who teaches that a bunion would be an adequate cause of insanity, if only we held the same belief about the bunion as we do about congestion of the brain; that smallpox is contagious by reason of the same agencies as make weeping or yawning contagious; that fear may be reflected in the body as fractured bones, just as shame is seen rising to the cheek; that anatomy and physiology and hygiene are the husbandmen of sickness and disease, while the reading of a textbook of Christian Science is equally effective in producing health; that when a healthy horse takes cold without his blanket, it is on account of the poor creature's knowledge of physiology—then such persons can hardly complain if they are cited as instances of modern credulity.

The supernatural is the chief subject of the third chapter, and in the fourth the author discusses especially the well known case of Eusapia Palladino. In the fifth chapter he considers the antecedents of the study of character and temperament, bringing in here the development of the humoral theory and growth of phrenology and of so-called physiognomonic science. The sixth chapter concerns fact and fable in animal psychology and the training of alleged educated animals, discussing particularly the famous Berlin horse "Kluge Hans" and "Jim Key," another equine sage. The seventh chapter, one of the most important for physicians, concerns "malicious animal magnetism," M. A. M., the antithesis, if one might hazard a wheeze, to A. M. A. This is a complete study of the growth of Christian Science, from the theories of Mesmer, through Dr. Quimby, to Mary Eddy and her disciples. One of the particular statements in this instance is:

> The loyal Christian Scientist may tolerate or cherish large reserved areas of belief in which an alien logic rules; he is, however, careful to draw the boundaries between these areas and the practical field of operation of his business affairs. He is hardly likely to treat in the same manner a Christian Science statement and a bank statement; nor will he assemble a company and ask their aid toward increasing his balance in the bank by throwing forth intense mental vibrations, or have a fear that his balance will be endangered by the malicious mental concentration of his rivals; he is not likely to believe that fluctuations of stocks can be brought about by "absent treatment" on the part of "metaphysical" bulls and bears.

The eighth chapter concerns the democratic suspicion of education, the title itself being explanatory. The ninth chapter discusses the psychology of indulgence, referring particularly to the use of alcohol and tobacco, and incidentally taking up antivaccination and antivivisection. A few quotations give an insight into the value of such pragmatic psychology:

> A comprehensive antipathy to alcohol and tobacco is expressed in the verdict that places them in the index expurgatorium of drugs, and speaks of the indulgence in their use, however moderate or occasional, as a drug habit. It allies them with cocain, morphin, opium, and similar psychic poisons, and once reaching the term "poison" has seemingly proved its case. This is certainly a striking example of the danger inherent in assuming an intolerant attitude toward a practice admittedly open to serious danger in its abuse; it also illustrates that such danger is not theoretical but wofully real in the American situation and temperament. In this aspect it is akin to the similarly expressed extreme antagonism to the use of drugs in any form, for any purpose. The exponents of drugless healing illustrate the menace of conviction when it is undiscriminating in its premises and uncompromising in its conclusions. It is wrong—the argument goes—to administer drugs; for drugs are unnatural, and many of them are poisons. Cults, such as Christian Science and Dowie's Zionism, are inspired by such argument; and the appeal is ever to the obvious examples of excess, the victims of drug habits that obsess and possess them to their undoing. Let children die through neglect of available treatment; let the pangs of disease and the tortures of injured tissues bring suffering to the full; let pestilence spread; but let us adjure drugs at whatever cost!
>
> It is, indeed, pertinent to observe that vivisection, vaccination, and the use of stimulants are essentially medical questions. This does not mean that physicians alone have the right to an opinion on the matter; it does mean that the same methods of scientific study must be applied to them as to all other problems in which the popular judgment must defer to the expert. Of the three, the vaccination question is clearly the most technical, the one in which a positive lay conviction in opposition to an established medical conclusion is most impertinent. Yet in this issue the method of prejudice loses none of its violence, is no more considerate of fact, than in more legitimately controversial matters, in which the nice adjustment of individual liberty and social welfare require a fair hearing of all interests.
>
> All such issues revolve about the claims of sentiment as against reason. The proper appraisal of sentiment must be tactfully as well

as charitably reached. The opposition to vivisection is more intelligible than that which inspires the antivaccinationists. It rests upon a sentiment that is cordially approved, but not as a principle to be followed at any price. In the view of humane men of science, vivisection is amply justified by the benefits which it confers upon the human race; to abandon it or even unduly restrict it would be a costly sacrifice to sentiment.

The following footnote is timely and worth quoting:

Since these words were written, the occasion for recalling them has arisen. The Red Cross has been sued by the antivivisectionists to prevent the use of one hundred thousand dollars appropriated by the War Council for medical research to relieve suffering and diminish the death rate among war casualties of our own soldiers. A more amazing instance of the menace of intentional ignorance and obstinate prejudice is hardly imaginable. To insist upon a sentimental objection against experiments upon animals at such a critical time in the history of the nation, in brutal disregard of the facts and in impertinent opposition to the expert conviction of medical proof, is as preposterous as it is inhumane. To state that vivisection has brought no benefit to mankind, in face of the overpowering evidence to the contrary, shows the utter blindness to evidence of a convinced sentimental prejudice; to urge that prejudice at this time and thus to cripple the humanitarian efforts that redeem the awful calamities of war shows the complete disregard of humane considerations to which unreason may lead. In the face of this instance of bigoted opinion, the strictures above applied to it seem criminally lenient. Like the delusions of the insane—to which such fanaticism is allied—the distinction between innocent and dangerous beliefs is most treacherous. Society cannot afford an attitude of tolerance; the menace of extreme conviction is too serious.

The tenth chapter concerns the feminine mind. The final chapter discusses militarism and pacifism, and is a strong argument for a conservative opinion.

The reviewer has taken considerable space for elaborate quotations because it is the easiest, and perhaps the best way, to let the reader know the character of this book. Professor Jastrow's essays may be regarded as one of the most practical contributions to everyday psychology that has appeared for a long time. His book is one that will be appreciated by every physician who is interested—what physician is not?—in the broad subject of the influence of thought on the body and on human actions.

THE PSYCHOLOGY OF BEHAVIOUR. A Practical Study of Human Personality and Conduct with Special Reference to Methods of Development. By Elizabeth Severn. Cloth. Price, $1.50 net. Pp. 349. New York: Dodd, Mead & Co., 1917.

The author says that extensive or careful analysis of "human nature" has in the past been left to the great philosophers and moralizers, and that psychology has long been taught after a fashion in the universities; but as the habit of academicians is to stick tightly to what is called "positive science," it has been left to the general public to voice its want of something more vital and applicable in this field. She therefore has become one of the self-appointed leaders in the "movement of applied psychology." By this she means the psychology of behavior not only as the result of the training and control of the intellect, the memory, the will, the imagination, the emotions, etc., in the building of character and a forceful, efficient personality, but also as applied to the improvement of the physical functioning of the body and consequently the health, and even for the cure of disease, for she is a practicing psychotherapist and has written a book on the subject. She is a believer in cure by taking thought, and defends the rise of the numerous cults that have this as their purpose, including, perhaps, "Christian Science," though she does not use the term. The subconscious mind, she believes, is a wonderful power which can to a great extent be utilized and its processes controlled for the undoubted benefit of the individual, including the cure of his bodily infirmities. Enough said!!

THE TECHNIQUE OF PSYCHOANALYSIS. By Smith Ely Jelliffe, M.D. Nervous and Mental Disease Monograph Series No. 26. Paper. Price $2. Pp. 163. New York: Nervous and Mental Disease Publishing Company, 1918.

This publication is the twenty-sixth nervous and mental disease monograph that has been edited by Drs. Jelliffe and White. It is probably unlikely that any one could learn a satisfactory technic of psychanalysis from any amount of reading; only practical clinical experience can enable one to undertake work of this character. Dr. Jelliffe's book points the way for the beginner to the literature of the subject, its history, the basic methods and the possibilities.

Medicolegal

Judgment for Defendant Reversed in Action for Compensation

(Rosenthal v. Greenberg (N. Y.), 168 N. Y. Supp. 488)

The Supreme Court of New York, Appellate Term, First Department, in reversing a judgment that was rendered in favor of the defendant, says that the plaintiff sued to recover for medical services rendered to two of the defendant's employees, named Quinn and Berkowitz, injured while in the defendant's employ. The plaintiff testified that prior to rendering any services for Quinn he called the defendant on the telephone and asked him about treating Quinn, and the defendant said: "I should go right ahead and treat the patient; when I get through, I should send him the bill." As to the treatment of Berkowitz, the plaintiff testified: "He was sent to my office. After I treated the patient, . . . I rang up Harry Greenberg (the defendant), and he said he was insured, and to treat the patient right along, and send him the bill when he got through. (Question) And he said he would pay for it? (Answer) Yes, sir. (Question) How much? (Answer) There was $25 for that bill, one visit and five surgical dressings." The defendant did not dispute these conversations; he admitted being called up, but contented himself with saying that he did not remember what he did say to the plaintiff on these occasions. It therefore stood undisputed that the defendant promised to pay for the plaintiff's services, and there was no dispute as to the rendition or value of them. It was also clear that in the case of Berkowitz there were at least five surgical dressings given him after the promise to pay was made by the defendant. There should be a new trial, and one is ordered, with $30 costs to the plaintiff to abide the event.

Liability for Malpractice Aggravated by Negligence of Patient

(Schultz v. Tasche et al. (Wis.), 165 N. W. R. 292)

The Supreme Court of Wisconsin affirms a judgment in favor of the plaintiff for $2,000 damages for alleged malpractice by the defendants in the treatment of a fracture of the femur of the plaintiff's right leg, although the jury found that there was a failure on her part to use ordinary care which contributed to produce the deformity and shortening of her leg. The court says that its later decisions are to the effect that negligence on the part of a plaintiff in the care of his injury which follows and aggravates negligent treatment by a physician, or aggravation from other causes not due to the physician's treatment, does not bar recovery. In such cases the plaintiff may recover for the injury resulting from the negligent treatment of the physician, but not for that resulting from his own negligence or from other aggravating conditions.

In this case the plaintiff's want of care consisted chiefly, if not entirely, in conduct by her after she left the hospital, and perhaps in her leaving prematurely. At any rate all these acts of hers took place after the defendant's negligent treatment was administered. It is not strictly correct to call such later negligence on the part of a patient contributory negligence, though it has been so styled in the books. It is rather subsequent or supervening negligence that aggravates the improper condition due to the physician's prior negligence. The two do not synchronize in producing the injury as they usually do in the ordinary negligence case. The cause of action for the physician's negligence may be complete and accrue before the negligence of the patient comes in to aggravate the result. When it does occur its consequences go in mitigation of damages, not in bar of the action. On the question of damages the trial court instructed the jury that they must distinguish between the defendant's negligence, if any, and the plaintiff's negligence, if any, or a result due to any other cause than the defendant's negligence, and assess damages for the improper result due to

the defendant's negligence. This correctly expressed the law on the subject. The contention that the jury could not distinguish the results between the negligence of the two parties was not without merit. But this court apprehends that it is no more difficult to separate the results of the two negligences than it often is to determine the results of the defendant's negligence alone, or how much money will compensate for a given result in a particular case. Such difficulties are inherent in the subject-matter dealt with, and courts and juries must wrestle with and solve them as best they can. In most cases there can be no mathematical or demonstrable certainty arrived at. Reasonable certainty is all the law requires, and is all that can usually be attained. The fact that the jury gave the plaintiff, a girl, 19 years of age, whose right leg was shortened an inch and a half, bowed out, caused her pain and lameness, and, so far as the evidence disclosed, would permanently remain in that condition, only $2,000, convinces the court that they made adequate allowance for her contributory negligence in mitigation of damages. If the judge inadvertently omitted to enumerate some of her negligent acts in his instructions, as was claimed, the jury evidently remembered them.

A nonsuit was properly denied as to the defendant Reich. From the evidence the jury might find that the greater part of the malpractice was complete before the plaintiff requested to leave the hospital; that it consisted in a failure to put the ends of the bone in apposition, and so retain them till a firm enough union was obtained to prevent them from overriding. There was evidence from which the jury might find the splints were prematurely removed, causing damage. Dr. Reich took part in those treatments. The fact that he did not know the plaintiff left the hospital was not very significant on the question of his liability in view of the other evidence in the case.

Construction of School Health Law

(Beard v. Webb (Calif.), 169 Pac. R. 927)

The District Court of Appeal of California, Third District, undertakes the construction of something of the scope of Chapter 598 of the Statutes of 1909, an act to provide for health and development supervision in the public schools of California, considered in connection with Subdivision 21 of Section 1617 of the Political Code approved subsequent to the approval of Chapter 598. The court says that Section 1 of Chapter 598 provides.

> Boards of school trustees and city boards of education are hereby authorized to establish health and development supervision in the public schools of this state, and to employ an examining staff and other employees necessary to carry on said work and to fix the compensation for the same. Whenever practicable the examining staff for health and development supervision in the public schools of the state shall consist of both educators and physicians.

Section 2 enumerates the purposes of supervision, one of them being:

> To secure the correction of developmental and acquired defects of both pupils and teachers which interfere with health, growth and efficiency, by complete physical examination. Said examinations shall occur annually or as often as may be determined by the board of school trustees or city board of education.

Section 3 provides for the qualifications of the examining staff.

The subdivision of the political code referred to authorizes the boards of education "to give diligent care to the health and physical education of pupils and where sufficient funds are provided by district taxation, to employ properly certified persons for such work."

The contention of the respondent, county superintendent of schools of Sacramento County, seemed to be: (1) That under the act of 1909 the board of education is empowered to employ only an examining staff consisting of educators and physicians and employees thereof, and that the board has no authority to employ any one else, independently of an educator or physician, to contribute to the health and development of the pupils and teachers of the public schools, although the special work for which such person is employed may be foreign to the services usually and properly performed by an educator or physician; and (2) that a board of education must carry out and execute all the purposes of health work as defined in said act or be precluded from doing any such work at the expense of the district. But the court thinks it may be epitomized that while the law provides for the employment of an examining board and defines the qualifications of its members, it also authorizes the board of education to employ suitable persons licensed by the state to do special work for the purpose of promoting the health and efficiency of the pupils, that discretion is vested in the board of education to adopt the entire scheme provided in said law or only a portion of it, keeping in view the necessities of the situation and the financial ability of the district and the commendable and useful purpose of the law, and that nothing was shown in this case to indicate a violation by the board of education of the city of Sacramento of any provision of the statute, in employing the petitioner, a licensed optometrist, to examine pupils of the public schools of said city to discover any visual defects of said pupils in order that such defects, if existing, might be corrected. Wherefore the court holds that the respondent refused to perform a plain ministerial duty in refusing to draw her requisition on the county auditor in favor of the petitioner for the payment of salary due the latter for the month of July, 1917, and that a writ of mandate must be issued requiring such requisition to be drawn. A rehearing was denied by the Supreme Court of California.

Insufficient Evidence of Malpractice Causing Death of Child

(Henline et ux. v. Southward (Wash.), 169 Pac. R. 315)

The Supreme Court of Washington, in affirming a judgment in favor of the defendant, says that the plaintiffs Henline sued him for damages, charging that the death of their newborn child was due to his negligent acts and omissions when employed to attend Mrs. Henline in childbirth. The court says that at the close of the plaintiffs' evidence the defendant challenged its legal sufficiency and moved for a directed verdict, which motion was granted by the trial court, and judgment rendered dismissing the action. The first error assigned by the plaintiffs was the rejection by the court of their offer to prove by expert testimony that the symptoms displayed by the dying baby would indicate that it was suffering from water taken into its lungs while lying face downward on the bed of its delivery, following shortly after the bursting of the water sac in the mother, and that immediate steps should have been taken by the attending physician to remove the water from its lungs; but there was no satisfactory evidence establishing that cause of death as a basis for predicating such a hypothesis for the admission of expert testimony.

The main contention of the plaintiffs was that the trial court erred in withdrawing the case from the jury on the defendant's challenge to the sufficiency of the evidence. The evidence on behalf of the plaintiffs tended to show that Mrs. Henline, being about seven months advanced in pregnancy, was suffering pains, and the defendant was summoned to attend her. He arrived about half an hour after the summons and found a nurse already in attendance. After making an examination of the patient, he stated that the water would break in half or three quarters of an hour and that a rubber sheet should be placed on the bed. The patient was made to lie down on the bed and told to remain very still, and the nurse was instructed not to help her. After spending fifteen or twenty minutes with the patient, the defendant departed, saying that he would return in half an hour. He did not return until after the lapse of nearly an hour. The water broke within half an hour after his departure, and the baby was born four or five minutes later. It was apparently normal and fully developed for its period of pregnancy, of about 6 pounds weight, and uttered a natural cry shortly after delivery, but soon began to choke and froth at the mouth, at the same time becoming black in the face. It died in about five hours. The defendant returned to the house about half an hour after the birth of the child, noticed that the baby in the hands of the nurse was frothing at the mouth, told

her to wipe the froth from its mouth quickly, stated that he thought the child would not live, and then passed to the bedside of the mother. Whether he took any measures for the relief of the child after assuring himself of the satisfactory condition of the mother did not appear from the evidence. The only evidence as to its death being due to strangulation was the testimony of Mrs. Henline that she supposed "it sucked its lungs full of water."

The evidence showed that there was no rubber sheeting to catch the water from the breaking sac; that the water was discharged on the ordinary bedding of sheets, quilts and mattress. There was no proof of water thereon in sufficient quantity to be drawn into the lungs, other than arose from the inference to be drawn from its having been discharged thereon, which was met by an equally justifiable inference that it had soaked into the bedding. The showing of death as having resulted from drawing water into the lungs did not rise above the merest surmise. On the other hand, an expert witness introduced by the plaintiffs testified that the death of the child, according to the symptoms in evidence, might have been due to any one of four other causes. The court is satisfied that there was not sufficient evidence to warrant the submission of the case to the jury.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
American Ophthalmological Society, New London, Conn., July 9-10.
Idaho State Medical Association, Seattle, July 17-19.
Montana Medical Association, Butte, July 10-11.
Washington State Medical Association, July 10.
Wyoming State Medical Society, Casper, Aug. 7.

THE AMERICAN ASSOCIATION OF ANESTHETISTS

Sixth Annual Meeting, held in Chicago, June 10-11, 1918

Acting President, DR. ALBERT H. MILLER, Providence, R. I., in the Chair

The Operative Risk in Cardiac Disease

DR. F. A. WILLIUS, Rochester, Minn.: Patients whose hearts allow them to go about in comfort, or those in whom this can be effected by medical treatment, are generally considered safe for operation. In heart disease due to focal infection, such gratifying results follow the removal of the focus that the risk of operation seems justified. Another group of cases often shows marked cardiac improvement, sufficient fully to justify operation, namely goiter, uterine fibroids and prostatic hypertrophy. Malignancy complicated by heart disease is generally considered operable if a fair chance of recovery is offered.

In every case the decision is based on several factors: (1) the immediate operative risk; (2) the probable improvement of the heart following operation; (3) the patient's relative chance for length of life or health with or without operation, and (4) in less serious conditions whether or not the operative relief will justify the added risk. Experience, in general, has justified the taking of risks in cases demanding surgical intervention.

It is impossible to classify cases on a basis of valvular disease alone because the true index of cardiac efficiency is mycardial quality, and this varies greatly in similar disease conditions. A classification based on cardiac reserve alone is also impossible because we have no accurate means of determining this factor, and clinical impressions are variable.

Six groups of cases have been studied: (1) auricular fibrillation; (2) auricular flutter; (3) impaired auriculoventricular conduction; (4) impaired intraventricular conduction (arborization block); (5) mital stenosis, and (6) aortic lesions, including valvular disease, aortitis and dilatation (not aneurysmal). These are generally recognized as bad risks or the worst risks, if angina pectoris and aneurysm are excepted.

The best measure of operative risk is a good clinical impresion of the patient's ability to withstand physical strain, supplemented by a careful history and a very thorough examination. Preoperative medical therapy and rest combined with surgical and medical correlation after operation is of paramount importance. The tendency is to require too great a margin of cardiac safety in surgical work. So far as the anesthesia is concerned, we have found the open drop-method of ether safe, efficient and satisfactory. Skilfully given it does not seem to add any measurable hazard to the risk of life involved even in the handling of thyrotoxic cardiopaths.

DISCUSSION

DR. W. HAMILTON LONG, Louisville, Ky.: Is any variety of agents or different methods of anesthesia employed in the several classes of cardiac risks?

DR. F. A. WILLIUS: In our clinic, ether by the open drop method is the routine anesthetic in all cases of major surgery. Our results seem to show that ether does not exert a detrimental effect on cardiac risks who have had proper care in preparation. Provided the trauma of the operation is not increased by etherization to the point of depression, the anesthetic, if it has any appreciable effect, is beneficial.

Instruction in the Pharmacology of Anesthetics

DR. TORALD SOLLMANN, Cleveland: Students should analyze the action of anesthetics, their modification by asphyxia, hemorrhage and sensory reflexes, the phenomena of fatalities, and the possibilities of treatment. These subjects, therefore, can be studied to the best advantage in the course of experimental pharmacology or pharmacodynamics. The instruction in pharmacology should be planned with a view to its future practical application, and should at least outline the problem of clinical anesthesia.

Postoperative Pneumonitis

DR. A. C. WHIPPLE, New York: This report is based on a study of ninety-seven cases of postoperative pneumonitis occurring among 3,719 postoperative patients with a mortality of 2.3 per cent. Many pneumonias are discoverable by the roentgen ray long before frank signs of consolidation appear. These patients show a rise of temperature within forty-eight hours after operation, unaccompanied by a chill. There is usually a moderate cough. The temperature continues high for a day or two and then drops by lysis. During the first few hours of the initial high temperature the roentgenogram shows a shadow in the lungs, usually in one of the lower lobes. At this time the only physical signs are dulness with diminished breath sounds. Bronchial breathing does not appear until twenty-four hours after the appearance of the shadow and after the drop in temperature.

These pneumonias are due to the Type IV pneumococcus, the variety that has been found to be fatal only rarely. This type usually occurs in the mouth of otherwise healthy persons, who have recently had or are suffering from an ordinary cold. Patients who have recently had a cold, unless in extreme urgency, should not be operated on until every evidence of such a cold is past.

It is equally as important to guard the patient from catching cold after the operation, as many postoperative pneumonias are due to careless exposure of patients after their removal from the operating room. In view of the irritant effect of ether on the respiratory mucous membrane, ether should not be used whenever there is the slightest evidence of infection of any portion of the respiratory tract.

DISCUSSION

DR. JOHN SEYBOLD, Denver: Dr. Whipple did not emphasize sufficiently the danger of postoperative pneumonia precipitated by unqualified anesthetists. If the incidence of postoperative pneumonitis is so great in a hospital supplied with skilled anesthetists, what must it be in hospitals that have not

the courage to publish their records? Surgeons should secure the most competent anesthetic service available and see to it that the anesthetists have had the medical education and training that will fit them for this work.

DR. ISABELLA C. HERB, Chicago: The incidence of postoperative lung complications seems to be greater after certain operative procedures rather than certain methods of anesthesia. Thus septic cases are most prone to develop postoperative pneumonias. Next in order follow operations on the stomach and gallbladder. We are very careful to maintain body heat during operations and prevent exposure of the patient. Our method of drop-ether does not produce mucus secretion.

DR. E. I. MCKESSON, Toledo, Ohio: Conservation of body heat before, during and after operation is essential in the prophylaxis of postoperative lung complications. An operating room temperature lower than 80 F. invites trouble. The most difficult period in the year is between seasons when adequate heat is not always obtainable. The patient should be protected from methods of anesthesia which produce profuse sweating, as in his condition exposure induces cutaneous shock and results in pneumonia.

DR. W. H. LONG, Louisville, Ky.: All anesthetic apparatus should be cleaned thoroughly before being used on another patient, especially when in the previous case mucus secretion has been profuse. Patients can best be protected from exposure by being wrapped in warm blankets before leaving the operating room and being placed in a warm bed.

DR. W. B. HOWELL, Montreal, Canada: Dr. Long's point is important, but difficult to put into effect in casualty clearing stations. Surgeons and anesthetists often have to work in sweaters, and no heating facilities are at hand to raise the temperature of the operating theater. Add to these inconveniences the effects of rain and mud, and it is obvious that postoperative pneumonia should be prevalent in casualty clearing station surgery. Postoperative pneumonia, however, in reality is extremely rare, although mucus hypersecretion is the rule.

DR. E. M. SANDERS, Nashville, Tenn.: Oral prophylaxis is absolutely necessary in the preparation of patients for safe anesthesia and successful surgery.

DR. RILEY, Havana, Cuba: While we have many cases of lobar pneumonia in Cuba, we do not have postoperative pneumonia. We use chloroform, but our patients are not chilled, nor is there hypersecretion of mucus.

Blood Pressure as a Guide During Major Operations

DR. HAROLD G. GIDDINGS, Boston: Frequent blood pressure readings during anesthesia will do much to indicate the exact condition of the patient during an operation. Blood pressure readings were made in fifty cases. The systolic pressure and pulse rate were noted on admission, before anesthesia and at five minute intervals during operation, or at lesser intervals, to study the effect of changes of posture, trauma to certain structures, ligation of important vessels, and other steps of the operative procedure. Individual blood pressures show slight increase due to excitement, and from 10 to 30 mm. increase during induction of etherization, after which the pressure falls to near the individual's level. The individual level after being reached is maintained rather closely throughout anesthesia, barring changes due to oncoming shock, asphyxia, sudden cerebral anemia, or changes in the patient's position on the table. Certain other factors, such as struggling, depth of anesthesia and manipulation of organs, also influence the pressure to a less degree.

In shock the pressure falls, usually gradually, while the pulse rate rises. In asphyxia, at the outset the respiratory center is stimulated, the breathing is deepened, and the vasomotor center of the medulla is thrown into action and there is a marked rise in blood pressure. This also applies to slighter degrees of deficient oxygenation. In cerebral anemia the pressure phenomena are exactly reversed and the fall is abrupt, very alarming and is accompanied by marked slowing of the pulse rate. This phenomenon occurs most frequently in head operations in the semiupright posture. Change of position to the horizontal or slight Trendelenburg usually restores pressure and pulse rate almost immediately. In our experience the Trendelenburg posture is followed by an almost immediate drop in pressure, though not an alarming curve, and a rather prompt return to the individual level. Keeping patients in this position over considerable lengths of time apparently produces no untoward results.

DISCUSSION

DR. E. I. MCKESSON, Toledo, Ohio: Blood pressure ratings should be taken as a routine during all major operations, as they give the most reliable information of the patient's condition and the myocardial reserve. The diastolic as well as the systolic pressure must be taken in order to secure the actual heart load. Pressures, if taken at the proper moment, will show a fall before there is a rise in the pulse rate. If the heart is compensating, the pressures must also rise; otherwise collapse must result. Except in spinal anesthesia, the Trendelenburg posture should never be used to the extreme degree. I seldom allow its use beyond from 10 to 15 degrees. It may lower blood pressures to the shock point. I am convinced that there is no anesthetic now in use that will raise and maintain blood pressure.

DR. R. M. WATERS, Sioux City, Iowa: I have noted peculiar falls in pressure associated with changes in posture. One such marked instance was a change from the extreme lithotomy to the horizontal posture. It was very striking.

DR. W. B. HOWELL, Montreal, Canada: Is there any drug or method of stimulation that can be used as a routine and depended on to restore and maintain blood pressure and counteract shock?

DR. E. I. MCKESSON: No drug or method is uniformly successful or dependable. Patients coming out from under the influence of an anesthetic may faint, thereby stimulating collapse or shock.

Experiences of an Anesthetist at the Front

DR. W. B. HOWELL, Montreal, Canada: There are in the Canadian Army Medical Corps in England and France an inadequate number of specialists in anesthesia. Private enterprises should supply modern anesthetic equipment. The McGill University Unit received $1,000 for this purpose. Specialists in anesthesia should be detailed to teach the most approved methods and to make suggestions as to the organization of proper anesthetic services. Young medical officers should be kept on anesthetic duty continuously for three months and have their work properly supervised. Every expert anesthetist sent overseas means the saving of a certain number of lives and the prevention of an immense amount of suffering and discomfort. Our gas-oxygen apparatus was especially useful in anesthetizing patients who were in bad condition from gas gangrene, sepsis or shock. It was also very useful in the wards for painful dressings, especially cases of compound fracture of the femur and gunshot wounds of the knee.

Soldiers, as a rule, take large amounts of ether with the open method, and the excitement stage is very unpleasant for the nursing sisters. Closed etherization with nitrous oxid or ethyl chlorid as a preliminary was found much more satisfactory for war surgery. The only drawback is the necessity of cleansing the inhaler. Intratracheal etherization proved entirely satisfactory for certain operations and also when there was a shortage of assistants. The Chevalier Jackson instrument for introducing the tube is ideal for the purpose. The dosimetric method of administering chloroform was the most satisfactory form of anesthesia. It proved very economical, pleasant, safe and free from untoward results, such as vomiting or pulmonary complications. The only drawbacks were the expense of apparatus, slowness of induction and deterioration of the rubber face piece. I have knowledge of three deaths, apparently due to the anesthetic, one under chloroform, one under ether and another under gas-oxygen. While not quite as satisfactory, on the whole, as gas-oxygen, ethyl chlorid serves a useful purpose for short operations and is very convenient and transportable. I saw but little spinal anesthesia used. At the Duchess of Westminster's Hospital at Le Touquet the anesthetist used intravenous ether with good results.

Nitrous Oxid-Oxygen Analgesia in Normal Labor and Operative Obstetrics

DR. W. C. DANFORTH, Evanston, Ill.: My observations are based on 663 cases. It is important to administer the gas before the uterine contraction becomes apparent to the patient as pain. The patient breathes in the nitrous oxid for a number of breaths, usually from three to four, occasionally from six to ten, depending on the measure of relief secured. Once in a while it is necessary to give gas throughout the entire extent of the pain. During the second stage it is frequently important for the obstetrician to announce the onset of uterine contraction by palpation in order to begin the analgesia soon enough. Gas alone is desirable only when a few breaths suffice for analgesia; otherwise from 5 to 15 per cent. oxygen should be added. Rebreathing is not utilized while the child remains in the uterus. Cyanosis must be avoided, and the patient should not be permitted to lapse into anesthesia, thereby obviating her cooperation or inviting an excitement stage. Analgesia is deepened toward the end of the second stage and at the time of delivery, and ether may be added advantageously during the final pains of delivery, without any of the usual unpleasant effects of etherization. Relaxation is promoted, and certain operative obstetric procedures are facilitated and rendered painless. Analgesia has been satisfactory in about 93 per cent. of the recorded cases. After three years' use and observation of gas analgesia, I feel that this method of pain relief has given the best results we have been able to attain in our maternity division. For perineal repair, episiotomy or other operative obstetric procedures, gas-oxygen, with or without ether, is the anesthetic of choice, if given by a skilled anesthetist. While we have used analgesia for periods exceeding three hours without untoward results, we try to limit it to that period to avoid any deleterious effect on the unborn child.

Combined Anesthesia for Cesarean Section

DR. J. CLARENCE WEBSTER, Chicago: I have used local or combined anesthesia in certain cardiac, pulmonary or nephritic cases with complete satisfaction. In my series of more than forty cases, all mothers have survived. One baby died, but this death was due to a defective heart. I am firmly convinced that ether anesthesia is rarely necessary in the performance of either abdominal or vaginal cesarean section.

DISCUSSION OF PAPERS OF DRS. DANFORTH AND WEBSTER

DR. BEN MORGAN, Chicago: I agree with Dr. Danforth. Aided by an expert anesthetist, the obstetrician can be saved several useless hours of attendance. The essential principle of success is anticipating the uterine contraction with the administration of the analgesic. Rebreathing is not as dangerous as supposed, if properly handled. It should never be used to the point of anoxemia. I have found concomitant etherization of value or ether-air a good substitute for the operative phases after gas-oxygen has supplied all requirements for the analgesic period of labor.

DR. E. I. MCKESSON, Toledo, Ohio: Patients can be trained to accept and manipulate analgesia. They will adapt their breathing to the requirements of the analgesia. There is no cause for cyanosis even with some rebreathing. In some cases cyanosis will persist, irrespective of rebreathing or oxygenation, and in such cases cardiac incompetence is usually present. I have found gas-oxygen anesthesia entirely satisfactory for cesarean sections, but profound anesthesia must not be used as it is harmful to mother and child. The mother may be rendered anoxemic, the child cyanotic, and the uterus may be paralyzed. Section should be done under light anesthesia, and immediately after incision of the abdomen pure oxygen should be given for two or three breaths. This assures enough oxygen to the child. When the child is born, the anesthesia is resumed for whatever remains to be done. I have not found it necessary to use concomitant etherization with gas-oxygen for forceps deliveries.

DR. ORVAL J. CUNNINGHAM, Kansas City, Kan.: I have found the self-administration method of obstetric analgesia very satisfactory with gas-oxygen. The method can be continued until the patients want to pull down, at which time the anesthetist takes over the administration.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Medical History, New York

October, 1917, **1**, No. 3

1 Figurations of Skeletal and Visceral Anatomy in Books of Hours. W. M. de Voynich and F. H. Garrison.—p. 225.
2 Babylonian—Assyrian Medicine. M. Jastrow, Jr., Philadelphia. —p. 231.
3 Greek Charm Used in England in Twelfth Century. C. Singer, Oxford, England.—p. 258.
4 Legislative and Administrative History of Medical Department of U. S. Army During Revolutionary Period (1776-1786). W. O. Owen.—p. 261.
5 Military Sanitation in Sixteenth, Seventeenth and Eighteenth Centuries. C. L. Heizmann, San Francisco.—p. 281.

Archives of Pediatrics, New York

May, 1918, **35**, No. 5

6 Consideration of Complications of Poliomyelitis and of General Treatment of Acute Stage. J. G. Regan, Brooklyn.—p. 357.
7 Laboratory as Aid in Diagnosis of Diseases of Children. A. G. Mitchell and F. C. Narr, Philadelphia.—p. 273.
8 *Direct Laryngoscopy in One Hundred and Eighty-Nine Cases of Croup. R. W. Gover, New York.—p. 281.
9 Congenital Unilocular Cyst of Liver (Hemangioma). Report of Case and Review of Literature. H. Lowenburg, Philadelphia. —p. 285.

8. **Direct Laryngoscopy in Croup.**—In Gover's opinion, there is no other method nearly as accurate in the diagnosis of laryngeal diphtheria as the direct laryngoscopic examination. Of the 189 cases examined by him by direct laryngoscopy 112 had membrane visible in the larynx while in 77 there was none. While the degree of croup was more frequently severe in the membrane than in the nonmembrane cases, yet in more than one fourth of the cases showing membrane the croup symptoms were mild, while in one sixth of the group not showing membrane, the symptoms were severe. The duration of croup was slightly longer in the membrane than in the nonmembrane cases. Of the 112 membrane cases 36 were subsequently intubated, while of the 77 not showing membrane 1 was subsequently intubated, and this one showed slight ulceration, as if there had been membrane present. Twenty-six of these cases had membrane above the cords only, 20 membrane below only, while 66 had membrane above and below. Membrane was noted on the epiglottis only five times. Membrane in the larynx seems to be much thinner and less firmly attached than that in the nose or fauces. In 29 cases membrane was removed from the larynx with forceps, and in 23 of these there was marked relief, although in only 14 was the relief permanent, while in 6 there was no appreciable effect.

After the removal of loose membrane there was no bleeding in most cases and very little in any. Only slight ulceration was apparent at the site. There did, however, seem to be a tendency toward edema in the cricoid region after the membrane had been removed. Sixty-three of the 112 membrane cases had appreciable stenosis, while it was present in only 11 of the 77 nonmembrane series. This latter was due to subglottic swelling. Of the 77 cases with no membrane in the larynx, 20 had membrane in the fauces. This would not influence the treatment in regard to antitoxin, but would in regard to intubation. In 51 cases cultures were taken from the larynx. Of those with membrane 26 were positive and 8 negative, while of those without membrane 13 were negative and 6 positive. Of the 6 positive culture cases, 5 showed membrane in the fauces. The mortality from all causes of the 112 membrane cases was 22, while that of the 77 nonmembrane was 5. The mortality of the 36 intubated cases was 11. The 1 intubated case of the nonmembrane group died. The cause of death in the 5 nonmembrane cases was faucial diphtheria and bronchopneumonia in 2; bronchopneumonia in 2; measles and bronchopneumonia in 1. The mortality was about twice as high for the cases with membrane in the larynx and fauces as it was for those with membrane in the larynx alone.

Boston Medical and Surgical Journal

June 13, 1918, **178**, No. 24

10 Army Tuberculosis Examinations. H. Gray, Boston.—p. 799.
11 *Study of Physical Condition of One Thousand Delinquents Seen in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 803.
12 Identification of Soldiers after Death by Head Measurements. A. MacDonald, Washington, D. C.—p. 807.
13 Pathologic Classifications of Pulmonary Tuberculosis. H. F. Gammons, Carlsbad, Texas.—p. 809.
14 Idiopathic Epilepsy. E. A. Tracy.—p. 810. To be continued.

11. **Study of Physical Condition of Delinquents.**—The purpose of the study made by Anderson and Leonard was to determine what part—if any—routine physical examinations might play in the disposition of a delinquent's case in court, and later in the institution of reconstructive measures while on probation. The vital importance of the physical condition in this connection, particularly in relation to his economic efficiency, his ability to support himself, cannot be overestimated. Exhausting physical diseases can so impair one's economic efficiency, so hamper one's ability to earn a living, as to render him a social misfit, causing him to drift from place to place, lowering his resistance to alcohol, drugs and such. It is clearly the duty of those having to do with delinquents to see to it that these conditions are sought out and treated, if such persons are to be returned to the community.

With the aim in view of showing the practical relationship of such facts as those above mentioned, to the routine work of the court, records of the last 1,000 cases examined were taken from the files, and the physical condition of each person noted, also the relationship which his physical condition bore—if any—to his economic efficiency. Six hundred and sixty-eight persons, or 66.8 per cent., of the persons were in good or fair health. Three hundred and forty-two persons, or 34.2 per cent., were in poor or bad health, and in such physical condition as to warrant urgent medical treatment. A study of immoral women, made by the authors, showed that 44 per cent. of the women were in poor or bad physical condition from diseases other than venereal (tuberculosis, asthma, Bright's disease, heart disease, etc.).

Of the 1,000 delinquents, about 626, or 62.6 per cent., were considered self-supporting while 374, or 37.4 per cent., were not self-supporting. Some correlation between the two sets of figures seems evident. Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed, while only 2 per cent. of those found to be in poor or bad physical condition had been steadily employed. Eighty-five per cent. of those found to be in good or fair physical condition had been and still were self-supporting, while only 18 per cent. of those found to be in poor or bad physical condition had been and were still self-supporting. Ninety-six per cent. of those regularly employed were found in good or fair physical condition, while only 3 per cent. were found to be in poor or bad physical condition. Eighty-six and three-tenths per cent. of those who were rated as "never worked" were found to be in poor or bad physical condition, while only 13.7 per cent. were found to be in good or fair physical condition.

Six hundred consecutive cases were examined for venereal infection. Forty-seven per cent. of these persons were suffering from one or both of these diseases. An additional 4.5 per cent. had doubtful blood and smears. Practically every other person in this group had syphilis or gonorrhea, or both conditions. Without a routine medical examination there is no safe and sane method of determining in court whether a person is free from venereal infection. These conditions are not, as is generally supposed, limited to purely chastity offenders, they are widely scattered among all classes of offenders. Three hundred and three cases were so-called offenders against chastity; of these 57.4 per cent. were suffering from syphilis or gonorrhea, or both. An additional 4.9 per cent. had doubtful bloods and smears. There were 134 cases of drunkenness; 38.8 per cent. of these persons had venereal disease, while an additional 6.5 per cent. were doubtful cases. There were 112 cases of larceny; of these persons 37.9 per cent., or one out of every three cases, had syphilis or gonorrhea, or both. There were seventeen persons arrested for possession of drugs, and 53 per cent. had venereal disease. There were three arrested for violating the liquor law, two of whom had syphilis. Three were arrested for assault and battery; all three had venereal disease. The conclusion reached from this study is that venereal disease is not limited to any one type of offender in court, but is found common among all classes of delinquents, and that a policy calling for a more routine investigation of the physical condition and the possibilities of each offender, prior to his disposition, would seem justifiable.

Colorado Medicine, Denver

June, 1918, **15**, No. 6

15 Cases of Congenital Dislocation of Hip. G. B. Packard, Denver.—p. 138.
16 Experience with Newer Treatment of Burns. O. M. Shere, Denver.—p. 141.
17 Internal Jugular Resection; Operation for Lateral Sinus Thrombosis Following Radical Mastoid Operation. T. J. Gallaher, Denver.—p. 145.
18 Relapsing Fever Endemic in Colorado. J. J. Waring, Denver.—p. 148.

Georgia Medical Association Journal, Augusta

June, 1918, **8**, No. 2

19 Ectopic Pregnancy Specimen — Unruptured. G. W. Quillian, Atlanta.—p. 29.
20 Cesarean Section—Midget. R. C. Woodard, Adel.—p. 34.
21 Chronic Appendicitis in Young Children. B. Moore, Atlanta.—p. 35.

Journal of Experimental Medicine, Baltimore

June, 1918, **27**, No. 6

22 Effect of Painting Pancreas with Epinephrin on Hyperglycemia and Glycosuria. I. S. Kleiner and S. J. Meltzer, New York.—p. 647.
23 Spirochetal Flora of Normal Male Genitalia. H. Noguchi, New York.—p. 667.
24 *Physiologic Stimulation of Choroid Plexus and Experimental Poliomyelitis. S. Flexner, H. L. Amoss and F. Eberson, New York.—p. 679.
25 Autodigestion of Normal Serum Through Action of Certain Chemical Agents. S. Yamakawa, New York.—p. 689.
26 Id. S. Yamakawa, New York.—p. 711.
27 *Antibody Production After Partial Suprarenalectomy in Guinea-Pigs. F. L. Gates, New York.—p. 725.
28 *Estivo-Autumnal Malaria. Extracellular Relation of Crescentic Bodies to Red Corpuscle and Their Method of Securing Attachment. M. R. Lawson, New London.—p. 739.
29 *Id. Multiple Infection of Red Corpuscles and Various Hypotheses Concerning It. M. R. Lawson, New London.—p. 749.

24. **Stimulation of Choroid Plexus and Experimental Poliomyelitis.**—The experiments recorded in this paper serve, in the first place, to confirm the experiments of Dixon and Halliburton on the stimulating effect of intravenous injections of extracts of choroid plexus in the secretion of the cerebrospinal fluid, and extend their observations to monkeys. They bring out also the variable effects of the virus of poliomyelitis, variations affected by the quality of the virus and also by the individual powers of resistance to infection possessed by individual monkeys. The chief outcome of the experiments has been to determine the fact that when the intravenous inoculation of the virus does not in itself suffice to induce infection and paralysis, the intravenous injection of extracts of the choroid plexus, which in themselves excite the secretory functions which preside over the formation of the cerebrospinal fluid, is powerless to modify this result. This fact would seem to be of interest and importance, since it has already been shown that very slight structural changes in the meningeal-choroidal complex suffice to make possible or certain infection under these circumstance. Apparently mere augmentation, from time to time, of the secretory functions of the choroid plexus, through intravenous injection of an extract of the choroid plexus and while the virus is still circulating, is insufficient to insure passage of the virus from the blood into the nervous tissues, on which infection depends. Neither does the augmentation exercise a restraining influence on the development of infection otherwise capable of taking place.

27. **Antibody Production After Partial Suprarenalectomy.**—By careful aseptic operation Gates found it possible to remove approximately three quarters to seven eighths of the suprarenal tissue of guinea-pigs without causing symptoms of

suprarenal insufficiency. Guinea-pigs were immunized to *Bacillus typhosus* or to hen corpuscles at varying intervals before or after the operation, and the curves of antibody formation traced for two to three months after immunization. Comparisons with the antibody curves of control animals similarly immunized fail to show that the suprarenalectomy had any influence on the rise or persistence of antibodies in the blood. For the purposes of the study it was not deemed necessary to produce an acute suprarenal insufficiency. If the suprarenal glands were the site of antibody formation or played an essential part in immunity processes, it does not seem probable that the small remainder of suprarenal tissue left in situ to sustain life would affect quantitatively the antibody response to a given antigen injection as do the entire normal glands. Gates, therefore, interprets the experiments to indicate that not only are the suprarenal glands not one of the important sources of typhoid agglutinins, or of hemagglutinins or hemolysins, but they play no essential part in the mechanism by which these antibodies are produced and maintained in the body.

28. **Crescentic Bodies in Estivo-Autumnal Malaria.**—According to Lawson estivo-autumnal parasites, including the crescentic bodies, are always extracellular; that is, they are attached to the external surface of the red corpuscles. Crescentic bodies attach themselves to the red corpuscles just as the younger parasites do, by encircling, with their cytoplasm, mounds of hemoglobin substance. These hemoglobin mounds may be seen protruding through various portions of the crescentic bodies, as well as at the periphery of parasites. The base of the mounds is occasionally outlined by the chromatin or pigment granules. The hemoglobin mounds protruding through the body proper of the crescentic bodies do not seem to alter the general outline of the parasites. The outline of the parasites may be traced through the transparent mounds. Whenever attaching pseudopodia are observed they are seen to arise from the cytoplasm of the parasites and may be in the form of loops or strings. When the crescents are attached they proceed to dissolve the hemoglobin to make it available for utilization, as similating what is required for nutrition, the waste product being in the form of pigment granules. After the hemoglobin mounds, to which the crescents are attached, have been decolorized by parasitic action, an appearance is obtained which has been described by most observers as vacuolization of the crescentic body. These observers believe the picture to be one of degeneration. The decolorized mounds of vacuoles ("achromatic areas") seen in connection with malarial parasites correspond to the nutrition vacuoles of the common ameba, and possibly the malarial parasite may, like these amebae, secrete reserve food.

29. **Multiple Infection of Red Corpuscles.**—This study by Lawson shows that multiple infection of red corpuscles with young parasites is seen in all malarial infections, but it is found most frequently in the estivo-autumnal infections. The occurrence is accidental and has no significance other than that if the instances are numerous it suggests a heavy infection. In instances of multiple infection the young parasites may be seen to be attached: (*a*) each encircling its own corpuscular mound, giving the typical ring form picture, or (*b*) two or more encircling one corpuscular mound, giving the appearance of a single ring with two or more masses of chromatin. Certain hypotheses as to the conjugation of malarial parasites have been formulated by observers to explain various instances of multiple infection. Lawson does not believe that conjugation ever occurs. She believes that these hypotheses resulted from observation of certain appearances presented by the attached parasites, as when they are attached so closely together that they may appear to be adherent, or when two or more are attached to one corpuscular mound, giving the appearance of a single parasite with more than one mass of chromatin.

Certain appearances have also been described as a precocious division of the chromatin masses of young parasites. In these instances the chromatin granules were usually described as varying in size. Such an appearance may be explained as follows: (*a*) two young parasites in varying stages of development may encircle one corpuscular mound, the cytoplasm of one parasite being superimposed over that of the other parasite, giving a picture of a single ring with two unequal masses of chromatin; or (*b*) the variation in the size and number of the chromatin masses may be the result of traumatism, as the nuclei of young parasites are rather easily broken up. Multiple infection of red corpuscles with crescentic bodies is considered rather a rare occurrence. It is always accidental, and if the instances are numerous it means a severe infection. When one accepts the fact that all malarial parasites are attached to the external surface of the red corpuscles, the biologic and morphologic characteristics of the parasites cease to be obscure.

Journal of Immunology, Baltimore

March, 1918, **3**, No. 2

30 Studies on Antitrypsin of Serum. B. Fujimoto, Tokyo, Japan. —p. 51.
31 Constancy of Protein Quotient During Intensive Digestion and Prolonged Starvation. S. Hanson, San Francisco.—p. 67.
32 *Immunologic Properties of Uveal Pigment. A. C. Woods, Philadelphia.—p. 75.
33 Examination of Blood Preliminary to Operation of Blood Transfusion. A. F. Coca, New York.—p. 93.
34 *Experiments on Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid. J. A. Kolmer and S. Sekiguchi, Philadelphia.—p. 101.
35 Isolation, Purification and Concentration of Immune Bodies; Study of Immune Hemolysin. M. Kosakai, Tokyo, Japan. —p. 109.
36 *New Method of Estimating Antitryptic Index of Blood Serum. T. B. Robertson and S. Hanson, San Francisco.—p. 131.
37 Noninfluence of Injections of Trypsin on Protein Quotient in Blood Serum. S. Hanson, San Francisco.—p. 139.
38 Effects of Intravenous Injections of Colloid (Gelatin), on Rabbit Serums. G. W. Clark, San Francisco.—p. 147.

32. **Immunologic Properties of Uveal Pigment.**—Woods claims that the pigment of the uveal tract of the eye possesses the properties of acting as antigen in homologous animals, and in its immunologic reactions is organ specific and not species specific. These findings can be demonstrated by the complement-fixation reaction with the serums of properly immunized animals, and by perfusion experiments on the eyes of sensitized animals. In the case of the perfusion experiments, the anaphylactic reaction is manifested by a marked contraction of the pupil, and the occurrence of small hemorrhages in the fundus. This reaction was used to study the antigenic properties of uveal pigment, and the results shown by complement fixation confirmed

34. **Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid.**—The removal of blood from normal dogs followed by the intravenous injection of human syphilitic serum in amounts varying from 30 to 50 c.c. per kilogram of body weight was followed by the presence of small amounts of syphilis reagin (the antibody concerned in the Wassermann reaction) in the cerebrospinal fluid. The reagin was found in the cerebrospinal fluid as early as three hours after transfusion with syphilitic serum. After irritation of the spinal meninges by the preliminary injection of sterile horse serum the amount of reagin gaining access to the cerebrospinal fluid after transfusion of syphilitic serum appeared to be somewhat greater. All traces of syphilis reagin in the cerebrospinal fluid of dogs following transfusion of human syphilitic serum apparently disappeared after twenty-two to forty-eight hours as determined by completely negative Wassermann reactions.

The intravenous injection of dog typhoid immune serum into a normal dog in amount of about 30 c.c. per kilogram of body weight, was followed by the appearance of traces of agglutinin in the cerebrospinal fluid within three hours after transfusion; fluid removed forty-eight hours later was free of agglutinin. These experiments demonstrate the possibility of the passage of antibody from the blood into the cerebrospinal fluid without primary involvement of the central nervous organs or injury to the mechanism concerned in the production of cerebrospinal fluid, when the amount of antibody in the blood has reached a point of high concentration. While it is possible that in human syphilis the presence of traces of reagin in the cerebrospinal fluid may be due to the passive transfer of this substance from the blood, as shown

by Wile and Stokes, the presence of the reagin with or without other changes in the fluid, as an increase of protein and cells usually indicates the presence and activity of *T. pallida* in the tissues of the central nervous organs.

36. **Antitryptic Index of Blood Serum.**—A simple and accurate method of measuring the antitryptic indexes of blood serums is described by Robertson and Hanson. It is shown that for varying proportions of antitrypsin (= A) added to a specified amount of trypsin (regarded as unity) the relation, $\frac{T}{A\,(1-T)} = C$, holds good for any given serum, T being the proportion of the trypsin neutralized by the serum and C a constant which is a direct measure of the number of molecules of antitrypsin contained in a specified volume of the serum. The molecular concentration of antitrypsin in blood serum is in great excess of the molecular concentration of proteolytically active material in a 1 per cent. solution of Gruebler's trypsin.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, 1918, **47**, No. 5

39 *Economic Efficiency of Epileptic Patients. M. Ryther and M. Ordway, Boston.—p. 321.
40 Rhizotomy for Relief of Pain. C. H. Frazier.—p. 343.

39. **Economic Efficiency of Epileptic Patients.**—The conclusion reached by Ryther and Ordway from a study of 100 epileptics chosen at random is that their study justifies an experiment in the treatment of epileptics such as has been developed for other handicapped patients, the blind, etc. They suggest small shops for selected groups of patients, where they can be given employment in spite of their attacks; that the patients be chosen from those who are much discouraged about their inability to earn because of attacks and who yet have ability; and that the experiment be a therapeutic rather than an economic one, at present. There seems to be no sufficient reason why shops of this sort should not be undertaken experimentally in connection with the work already established in institutions dedicated to the work of caring for epileptic patients, or even by general hospitals. The authors call attention to the relative success which has attended the efforts of the Massachusetts General Hospital to establish a shop for the physically handicapped, and urge the claims of epileptic patients to similar opportunities. The experience of epileptic institutions seems to have proved that these patients soon get used to witnessing seizures among their fellow sufferers, and that their eagerness to learn to work and to learn is so great that they will endure much to gain these ends. The success of patients with little businesses of their own suggests that some of them might be trained for small home industries either in such a shop or by a visiting teacher.

Journal of Medical Research, Boston

March, 1918, **38**, No. 1

41 Bacteriologic Examination for Meningococcus Carriers. L. D. Bushnell, Manhattan, Kan.—p. 1.
42 *Autotransplantation and Homotransplantation of Uterus in Guinea-Pig. C. Hesselberg, W. Kerwin and L. Loeb, St. Louis.—p. 11.
43 Successive Transplantation of Thyroid Tissue into Same Host. C. Hesselberg and L. Loeb, St. Louis.—p. 33.
44 *Bactericidal Action of Arsenical Compounds on Experimentally Produced Streptococcic Septicemias. C. S. Allison.—p. 55.
45 *Influence of Parathyroidectomy on Gastro-Intestinal Mucosa of Dogs and Rabbits. G. A. Friedman, University, N. Y.—p. 69.
46 Paratyphoid Enteritidis Group: Correlation of Cultural and Agglutination Results; Special Reference to B. Paratyphosus "B" and B. Cholera Suis. C. Krumwiede, Jr., L. A. Kohn and E. Valentine, New York.—p. 89.

42. **Autotransplantation and Homotransplantation of Uterus.**—The authors selected uterine tissue as representative of a mucous membrane. The results were as follows: Soon after transplantation only small parts of peripheral tissue are preserved. Gradually a recovery of shrunken tissue occurs in addition to new formation of tissue through cell proliferation. There are indications that different tissues show a different degree of resistance to the injury caused by transplantation. Unstriated muscle was seen to recover later than epithelial structures and peritoneal endothelium. While after homotransplantation of uterus, as well as of thyroid and kidney, substances (homotoxins) are produced which attract lymphocytes, the lymphocytic reaction is quantitatively stronger after homotransplantation of thyroid and kidney. After homotransplantation of the uterus the homotoxins exert a primary injurious influence on muscle and connective tissue, which suffer directly. The epithelium suffers secondarily, probably as a result of the changes in the stroma, and to a minor extent through the activity of lymphocytes. On the other hand, after homotransplantation of kidney and thyroid, the main injury is inflicted on the transplanted tissue through lymphocytes and (to a less extent) connective tissue cells of the host. In both cases epithelial structures are more resistant and are least injured through the direct influence of the homotoxins. They are injured or destroyed as a result of the attack by the cellular elements of the host. The connective tissue and muscle of the uterus are injured directly through the homotoxins and are only secondarily injured by cells of the host. The differences in the cell proliferation which exist between the normal uterine epithelium, on the one hand, and kidney and thyroid on the other, persist after autotransplantation. It is probable that these differences are due to primary differences in the constitution of these types of cells.

44. **Bactericidal Action of Arsenical Compounds on Streptococcemias.**—Allison's report of his experimental work shows that the salvarsan, diarsenol and arsenobenzol brands of arsphenamin have a marked bactericidal action on different strains of streptococci in vitro, and that these arsenical compounds are of value in the treatment of experimental septicemias due to these organisms. Fifteen different strains of streptococci, representing both the hemolytic and the viridans groups, were used. The ordinary 1:500 dilutions of the drugs were used. It was evident that these agents possess a distinct bactericidal power against virulent strains of streptococci in vitro, in dilutions up to 1:3,000, and an inhibiting power over these organisms for at least twenty-four hours in weaker dilutions. They possess a bactericidal action against streptococci in the blood stream of experimental animals. The success of the treatment depends largely on the virulence of the organisms and on reaching them before they become localized in some remote parts of the animal body. They produced no untoward effects on the animals where the maximum doses were frequently repeated. They possess a possible advantage over antistreptococcic serums in that they do not destroy the bacterial cell and are, therefore, probably less liable to cause the sudden liberation of intracellular toxins. They possess hopeful possibilities for the treatment of streptococcic septicemia in the human subject, as has been shown in a limited clinical experience. The success of the treatment depends on the removal of the source of infection and the administration of the treatment before secondary localization of the infections.

45. **Influence of Parathyroidectomy on Gastric Mucosa.**—Hemithyroidectomy, or removal of one lobe of the thyroid, was performed on ten dogs and ten rabbits. Eight other animals were used for the complete extirpation of the thyroid apparatus. Although it was frequently impossible to spare the parathyroids in the dogs, and almost always impossible in the rabbits, one or more of the parathyroids were left in situ in the majority of the animals. Friedman found that thyroid insufficiency causes in dogs and in rabbits acute ulcers in the stomach, duodenum, and occasionally appendicular lesions. These ulcers do not show a tendency to heal, since permanent constitution anomalies are probably created by thyroidectomy. In man minor degrees of thyroid insufficiency may cause the appearance of the initial lesion of peptic ulcer or appendicitis. Since thyroid insufficiency is probably slighter in man than the animals whose condition is produced experimentally, nature, assisted or unassisted by treatment, may overcome the anomalous constitutions created by lack of thyroid secretion. The chronicity of ulcer is caused by other factors, among which may be mentioned the constant irritation of food on the ulcerated region as the chief factor and the excessive secretion of hydrochloric acid. The primary

lesion of appendicitis is not due to infection in all probability, but to thyroid insufficiency. After the initial lesion has been formed the invasion of bacteria and stagnation of feces will help to develop the various forms of appendicitis. The diminished thyroid secretion in man may be responsible for the association of peptic ulcer and appendicitis. The cooperation of the suprarenals or parathyroids in the causation of the initial lesion is probable. The probable existing relation between them must be a functional one. Friedman is of the opinion that the assumption of a disturbance in the endocrinous glands explains posibly the subtonic and hypertonic type of stomach of peptic ulcer.

Medical Record, New York

June 15, 1918, **93**, No. 24

47 Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 1015.
48 Some Functions of Consciousness. G. V. N. Dearborn, Cambridge. —p. 1018.
49 Routine Method of Examination and Study of Gastro-Intestinal Tract by Roentgen Ray. I. S. Hirsch and I. J. Landsman, New York.—p. 1021.
50 Some Educational Problems of Race Hygiene. E. S. Brodsky, Westport, Conn.—p. 1028.
51 Visceral Lesions of Purpura Hemorrhagica and Acute Articular Rheumatism. A. H. Harrigan, New York.—p. 1033.

Michigan State Medical Society Journal, Grand Rapids

June, 1918, **17**, No. 6

52 Duty of Hour Is Service. A. P. Biddle, Detroit.—p. 249.
53 Medical Work in Camp Custer. C. J. Bartlett, Camp Custer. —p. 252.
54 Differential Diagnosis of Streptococcus, Staphylococcus and Pneumococcus Infections from Clinical Standpoint. J. E. Davis, Detroit.—p. 255.
55 Technic of Taking Blood Pressure. W. R. Vis, Detroit.—p. 260.

Minnesota Medicine, St. Paul

June, 1918, **1**, No. 6

56 Fractures about Joints. B. F. Lounsbury, Chicago.—p. 201.
57 Plea for Cooperation in Venereal Disease Control. H. G. Irvine, Minneapolis.—p. 205.
58 Fractures of Tibia. A. W. Ide, Brainerd.—p. 220.
59 Differential Diagnosis between Anterior Poliomyelitis, Epidemic Cerebrospinal Meningitis and Tuberculous Meningitis. C. C. Pratt, Mankato.—p. 224.

New Jersey Medical Society Journal, Orange

June, 1918, **15**, No. 6

60 Facts Showing Correlation between Tuberculosis and Industry. F. S. Crum, Newark.—p. 181.
61 Tuberculosis. H. I. Goldstein, Camden.—p. 183.
62 Detecting Tubercle Bacilli in Sputum by Use of Antiformin Sputum Cup. M. J. Fine, Newark.—p. 189.
63 Tuberculosis Problem in County of Middlesex. C. I. Silk, Perth Amboy.—p. 191.
64 Laboratory; Its Sphere of Usefulness and Community. R. N. Connolly, Newark.—p. 194.

Ohio State Medical Journal, Columbus

June, 1918, **14**, No. 6

65 Early Diagnosis of Gastric Cancer. W. C. Stoner, Cleveland. —p. 344.
66 Campaign Against Venereal Diseases in State of Ohio. H. N. Cole, Cleveland.—p. 345.
67 Present Status of Diagnosis and Treatment of Acute Anterior Poliomyelitis. A. G. Helmick, Columbus.—p. 347.
68 Is Compulsory Health Insurance Justifiable Measure? C. H. Wells, Columbus.—p. 352.

Oklahoma State Medical Association Journal, Muskogee

June, 1918, **11**, No. 6

69 Early Care of Eye Injuries and Diseases. L. A. Newton, Oklahoma City.—p. 177.
70 Syphilis of Bladder; Report of Cases. W. J. Wallace, Oklahoma City.—p. 186.

New York Medical Journal

June 15, 1918, **107**, No. 24

71 Surgery of Laryngeal Malignancy. H. Arrowsmith, Brooklyn. —p. 1105.
72 Suggestions for Improving Operation for Cataract. M. Talmey, New York.—p. 1108.
73 Clinical Signficance of Intestinal Hemorrhage. F. C. Yeomans, New York.—p. 1115.
74 Pyorrhea Alveolaris from Medical Standpoint. A. L. Benedict, Buffalo.—p. 1119.
75 Treatment of Leg Ulcers. P. G. Skillern, Jr., Philadelphia.— p. 1121.
76 Preparation of Solutions of Salvarsan Arsenobenzol for Intravenous Use. H. Goodman, New York.—p. 1122.
77 Excessive Venereal Rate in U. S. Army. W. T. Belfield, Chicago. —p. 1124.
78 Malarial Fever. F. R. Newman, Wheeling, W. Va.—p. 1126.

Pennsylvania Medical Journal, Athens

May, 1918, **21**, No. 8

79 Function and Apparatus of Equilibration. B. A. Randall, Philadelphia.—p. 491.
80 Clinical Studies in Vertigo. L. Fisher, Philadelphia.—p. 492.
81 Place of Opium in Therapeutics of Infancy and Childhood. J. P. C. Griffith, Philadelphia.—p. 497.
82 Influence of Prenatal Care on Infant Morality. C. H. Miner, Wilkes-Barre.—p. 502.
83 Management of Difficult Cases of Breast Feeding. H. C. Carpenter, Philadelphia.—p. 506.
84 *Constitutional Disturbance of Toxic Goiter as Influenced by Surgical Therapy. C. H. Frazier, Philadelphia.—p. 510.
85 Pus Infections of Anorectal Region. C. C. Mechling, Pittsburgh. —p. 514.
86 Interrelation of Appendicitis, Cholecystitis and Pancreatitis. E. Laplace, Philadelphia.—p. 518.
87 Review of Certain Postulates in Pelvic Surgery. W. R. Davies, Scranton.—p. 521.
88 Hoarseness; Its Relation to Local and General Diseases. J. H. McCready, Pittsburgh.—p. 523.

84. **Toxic Goiter.**—Frazier reiterates that toxic goiter belongs essentially to the domain of surgery, recognizing, of course, certain exceptions. The "nonsurgical" treatment of the toxic goiter is attended with a higher rate of mortality, and, among those supposedly cured, on the patients' return to their normal habits relapses are indeed frequent. Add to this the inevitable complications which follow delay—disturbances of nutrition, permanent organic damage to the structures of the heart, the kidney, the suprarenal, the exhaustion of the nervous system, the exophthalmos and possible loss of vision, the inevitable incapacitation in, if not actual abandonment of, occupation or everyday life work, and we have an array of facts which justifies a positive stand in favor of surgical, as compared with nonsurgical, management of the disease.

Rhode Island Medical Journal, Providence

June, 1918, **2**, No. 6

89 Some Cardiovascular Considerations in Connection with Advisory Draft Board Examinations. G. S. Mathews.—p. 85.
90 Epidemic Meningitis. C. D. Sawyer, Providence.—p. 88.
91 Case of Simultaneous Fracture of Six Long Bones. R. Hammond, Providence.—p. 91.
92 Report of First Case of Pellagra in 1918. H. A. Jones, Howard. —p. 92.

Southwestern Medicine, El Paso, Texas

June, 1918, **2**, No. 6

93 U. S. Government Free Venereal Clinic. V. V. Wood.—p. 6.
94 Medicolegal Aspect of Abortion. W. Wylie, Phoenix, Ariz.—p. 15.
95 Chemical, Thermal and Mechanical Effects of Various Electrical Modalities and Their Therapeutic Value. W. W. Wilkinson, Phoenix.—p. 18.
96 Some Statistics Gathered from Physical Examination of Employees. R. Stroud, Gleeson, Ariz.—p. 23.

Vermont Medicine, Rutland

May, 1918, **3**, No. 5

97 Manual Dilatation, Version and Delivery. J. M. Hackett, Champlain, N. Y.—p. 107.

West Virginia Medical Journal, Huntington

May, 1918, **12**, No. 11

98 Red Cross Is Mobilized Heart and Spirit of People. H. A. Giltner, Parkersburg.—p. 401.
99 Madness of Men and Nations. W. W. Brown, Shenandoah Junction.—p. 405.
100 Treatment of Coughs. A. H. Hoge, Bluefield.—p. 408.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

May, 1918, **21**, No. 4

1 *Treatment of Simple Tertian Malaria. Oral Administration of Quinin Sulphate Daily Over Prolonged Periods. J. W. W. Stephens and others.—p. 309.
2 *Id. Oral Administration of Quinin Sulphate for Two Consecutive Days Weekly Over Prolonged Periods. J. W. W. Stephens and others.—p. 331.

3 *Id. Comparison of Results of Interrupted and Continuous Quinin Administration. J. W. W. Stephens and others.—p. 359.
4 *Id. Oral Administration of Quinin Sulphate Grains 120 on Two Consecutive Days Only. J. W. W. Stephens and others.—p. 417.
5 *Id. Oral Administration of Quinin Sulphate Grains 90 on Two Consecutive Days Weekly for Three Weeks. J. W. W. Stephens and others.—p. 421.
6 *Id. At What Time After Cessation of Quinin Treatment Do Relapses Occur? J. W. W. Stephens and others.—p. 425.
7 Detection and Estimation of Quinin in Blood and Urine. W. Ramsden and I. J. Lipkin.—p. 443.
8 Comparative Study of Habits of Glossina Brevipalpis, Newst., G. Fusca, West, and G. Pallidipes, Aust. in Belgian Congo. J. Schwetz.—p. 365.
9 Strongylidae in Horses. W. Yorke and J. W. S. Macfie.—p. 399.
10 Id. Cylicostomum Minutum sp. n. W. Yorke and J. W. S. Macfie.—p. 405.
11 Id. Cylicostomum Nassatum Looss. var. Parvum. W. Yorke and J. W. S. Macfie.—p. 411.

1. **Quinin Sulphate Daily in Simple Tertian Malaria.**—The authors found that practically all patients were able to take a daily dose of 20 to 30 grains of quinin for eight weeks or more. When, however, the daily dose reached 45 grains it was found that only seven of nineteen patients were able to complete the full eight weeks' treatment. In the remaining twelve the treatment had to be stopped prematurely owing to tremors and vomiting. Of the various forms of continuous treatments used 45 grains per day in 3 doses of 15 grains each was the best.

2. **Quinin Sulphate for Two Consecutive Days.**—Quinin was given on two consecutive days each week, that is, Saturday and Sunday, over a period of eight weeks or more. All the patients were able to take without difficulty the largest dose of quinin employed, namely, 45 grains (three doses of 15 grains) on two consecutive days weekly. Forty-five grains each day gave the best results.

3. **Comparison of Interrupted and Continuous Quinin Treatment.**—Careful clinical observation and experimental studies have convinced the authors that the interrupted treatment with quinin, 30 or 45 grains twice weekly, is preferable to continuous treatment, 30 or 45 grains seven times weekly. Forty-five grains twice weekly is better than 30 grains twice weekly or than 30 grains daily, both as a palliative and as a curative treatment.

4. **One Hundred and Twenty Grains of Quinin on Two Consecutive Days.**—Quinin sulphate, orally, in doses of 120 grains on each of two consecutive days, represents the maximum amount of the drug which can be tolerated by the average patients. The treatment had to be abandoned by the authors owing to severe symptoms in five out of fifteen cases. Relapses occurred in 60 per cent. of the patients who completed the treatment. The results compare unfavorably with those obtained in the 90 grains series, where only 38 per cent. relapsed.

5. **Ninety Grains of Quinin on Two Consecutive Days.**—Ninety grains of quinin sulphate on two consecutive days weekly over a period of three weeks produces a cure in 50 to 54 per cent. of the patients. These figures are therefore not quite so good as those obtained in the series treated with 90 grains on two consecutive days only, but the slight difference in the result may well be due to the smaller number of patients treated.

6. **At What Time After Cessation of Quinin Treatment Do Relapses Occur?**—The general conclusion drawn by Stephens and his associates from these observations appears to be that if a case of simple tertian malaria has not relapsed parasitically within four weeks of cessation of treatment, the patient can be discharged from the hospital with a risk of relapse of only about 13 per cent., while if he has not relapsed within six weeks of cessation of treatment his risk of subsequent relapse is reduced to less than 5 per cent.

Archives of Radiology and Electrotherapy, London

May, 1918, **22**, No. 12

12 Various Methods Available for Heating Filament of Coolidge Tube. F. H. Johnson.—p. 365.
13 Use of Opaque Ureteral Catheter to Localize Missiles in Region of Kidney and Ureter. A. Fullerton.—p. 371.
14 Electrical Department, Military Hospital, Tidworth. F. G. Bergin. —p. 376.
15 Fracture of Sesamoid Bones. J. H. Edwards.—p. 381.

Bristol Medico-Chirurgical Journal

1918, **36**, No. 135

16 Some Developments in Abdominal Surgery. F. Lace.—p. 1.

British Medical Journal, London

May 25, 1918, **1**, No. 2995

17 *Bacterial Flora of War Wounds. K. Goadby.—p. 581.
18 Vibrion Septique. M. Robertson.—p. 583.
19 Treatment and Prophylaxis of Malaria. C. A. Johnston.—p. 586.
20 Epidemic Polioencephalitis. C. H. Melland.—p. 587.
21 *"Thick Drop" Method for Detection of Scanty Spirochetes in Blood. H. M. Woodcock.—p. 589.
22 Internal Derangements of Knee Joint. H. Bramwell.—p. 589.

17. **Bacterial Flora of War Wounds.**—One hundred excised wounds were examined carefully to determine if any influence could be traced to the antiseptic used. Fifty of the wounds had been treated with hypochlorite, with or without Carrel tubes; forty had been treated by bipp. The remaining ten had various forms of antiseptics, including flavine and brilliant green. The two chief antiseptics in use were hypochlorite and bipp. On examining the percentage of the flora in each case there was no difference whatever attributable to either antiseptic. In each class—hypochlorite and bipp—the incidence of sporing bacteria and *Bacillus welchii* was 30 per cent.; for the proteolytic type 29 and 31 per cent., respectively. Goadby says, that certain practical disadvantages are associated with both these antiseptics. 1. Hypochlorite: Cases treated with Carrell tubes rarely arrive in home hospitals with the tubes in the position in which they were originally placed, and on the rare occasions on which they are still in the wound the tubes are generally so blocked as to render them entirely useless. On the other hand, as the Carrel tubes are passed through the bandages and fresh hypochlorite is passed down the tube, some of it finding its way into the wound or into the dressing, the chief advantage appears to be that the bandages are not removed in the ambulance train and the case submitted to the chance of fresh infection. 2. Bipp: A certain number of wounds arrive with so much bismuth inserted that it partially obscures the finer structure in fractured bones. A certain number of cases—10 per cent. of 100 cases treated with bipp—have shown symptoms of poisoning due to bismuth—blue line of the gums, blue tongue, and blue patches on the buccal surface of the cheeks, gastritis, diarrhea and vomiting. Three instances have been seen of iodin poisoning with mental symptoms. In cases of poisoning attributable to the bipp very large quantities had been made use of. In the immediate treatment of wounds, immediate excision of the lacerated tissues is apparently the only one that has produced a marked diminution in the anaerobic flora of the wounds.

21. **Thick Drop Method for Detection of Spirochetes in Blood.**—To prepare a thick drop for examination, a small drop of blood is placed on a clean slide. The drop should be about as large as is required for making a good sized smear and should be spread out a little (with the needle) so as to cover an area about three-eighths inch in diameter. Too thick a drop is not an advantage, as it is difficult to lake (dehemoglobinize) completely, and more fibrin is present. The drop must be allowed to dry thoroughly, and before proceeding to lake it, may be gently heated by passing it over a flame two or three times. There are several well known methods of laking the thick drop. Woodcock has made use of two: (*a*) distilled water, or (*b*) acidulated methyl alcohol. Dehemoglobinization is more complete and rapid by the former method, and there is less formation of fibrin. But unless the greatest care is exercised, the drop, or portions of it, are apt to be removed from the slide, in spite of complete drying (as there has been no proper fixation previously). If distilled water is used, and the preparation is to be stained by gentian-violet, it is advisable, after carefully draining off the water when the laking is complete, to pour on a few drops of

methyl alcohol, for a minute or two, to fix the preparation to the slide.

The thick drop may be stained by the Giemsa or Leishman method, or with anilin gentian-violet; the last gives excellent results with spirochetes, the intensely blue stained parasites standing out well from the surrounding elements. Anilin gentian-violet is used in the proportion of 9 parts of anilin water to 1 part of alcoholic gentian-violet, the stain being left on for twenty seconds or so. The preparation is then well washed with distilled water, by which means the requisite degree of extraction and differentiation can be obtained, and finally dried. Where examination is desired for suspected malaria or relapsing fever, it is a useful plan to have the slide sent in with both a fair sized film and a thick drop on it. For staining, the smear can be separated from the drop by drawing a line with a grease pencil across the slide, between the two. The smear is stained by the Giemsa or Leishman method, and if no malarial parasites are found, nor spirochetes quickly seen, the thick drop is used. If it is desired to examine the drop also for scarce malarial parasites (for example, crescents) as well as spirochetes, the second method of laking is to be preferred, as distilled water is very liable to disintegrate malarial parasites; and in this case the Giemsa or Leishman method must be used for staining.

Journal of Tropical Medicine and Hygiene, London

May 15, 1918, **21**, No. 10

23 Sudanese Examples of Two Common Hyperkeratoses. A. J. Chalmers and A. Innes.—p. 105.

Lancet, London

May 18, 1918, **1**, No. 4942

24 *Teaching and Training in Hygiene: II. Training of Medical Public Health Worker. H. R. Kenwood.—p. 695.
25 *Botulism and Heine-Medin Disease. F. G. Crookshank.—p. 699.
26 Physiology of Functional Paralysis of Voluntary Movement. T. G. Brown and R. M. Stewart.—p. 702.
27 Mastoid Disease in Balkans. J. A. Jones.—p. 704.
28 Graphic Records of Muscle Reaction. G. M. Levick.—p. 705.
29 Meningococcus Agglutinating Serum: Method of Increasing Yield from Rabbit. A. S. G. Bell and I. M. Harmer.—p. 705.
30 *Twenty-Eight Cases of Ruptured Gastric Ulcer Among Soldiers with Two Deaths. C. E. Murphy.—p. 706.
31 *Plastic Operation for Apparently Lengthening Amputation Stump. S. A. Smith.—p. 706.

24. **Teaching and Training in Hygiene.**—Kenwood proposes founding in London a central institute of hygiene: At this institute there would be social study courses provided, both for undergraduates and postgraduates. These courses would be conducted by a university teacher, and would include addresses by experienced social workers and much observation work by visits. In connection with the center a summer course would be arranged for those who are already engaged in various kinds of public health work. A round of visits would be arranged to special public health provisions outside London. The center would also provide what we must all agree in believing is a legitimate function of a university center, namely, occasional opportunities for popular instruction. University evening lectures on subjects bearing on hygiene would attract good audiences, and in addition to effecting much good by disseminating useful knowledge would advertise the university and by exciting interest and appreciation assist in obtaining public donations for study and research. There would be seven or eight lecturers (two of whom should be professors and two assistant professors), eight demonstrators (four full-time) and eight full-time unqualified assistants; and, for the purposes of organization, one of the professors would be appointed to act as the director of the institute. Arrangements would be made whereby, throughout the whole of each working day, either a professor or an assistant professor would be in charge.

25. **Botulism and Heine-Medin Disease.**—There is at present in London (and elsewhere) an outbreak of cases clinically indistinguishable from examples of Heine-Medin disease. The outbreak is, epidemiologically and clinically, identical with the great epidemic in New York of 1916. All ages are affected, and the cases are of every grade of severity and of every clinical variety. The disease has three clinical stages: (*a*) That of initial illness, with, perhaps, sore throat; respiratory or gastro-intestinal disorder; headache and fever. (*b*) A latent period that may be very short (twenty-four hours or less), or prolonged to perhaps a fortnight or even more. (*c*) The stage of definite nervous symptoms. This stage may be: (1) absent or (2) "abortive," (3) rapid or (4) sudden in onset, (5) "paralytic" or (6) nonparalytic, (7) so consecutive to (*a*) as to appear clinically a part of it, or (8) so removed from (*a*) by (*b*) that connection is not at first considered by the medical man. The disease is communicable, especially in the stage called "a."

In respect of individual treatment the following suggestions are made by Crookshank: 1. Rest and good nursing are essential. 2. Careful cleansing of the mouth and pharynx; and attention to the state of the stomach, bowels, kidneys and bladder are imperative. 3. There is experimental and clinical evidence in favor of early, and at first intensive, administration of hexamethylenamin which, it is believed, may be combined usefully with salicylate of soda and benzoate of ammonia in free doses. 4. The employment of strychnin is of use in cases attended by bulbar exhaustion, or by paralysis of the muscles concerned in respiration. 5. The application by an atomizer of liquid paraffin to the mouth, nose and pharynx alleviates dryness of the passages and by lessening foulness diminishes the risk of secondary pulmonary affections. To this end, a drop or two of oil of peppermint, may be shaken up with each ounce of liquid paraffin used. 6. Confinement to bed should be prolonged rather than curtailed; and patients discharged should be watched, for at least three months, in order that record be obtained of any sequelae or permanent disability.

30. **Ruptured Gastric Ulcer Among Soldiers.**—Murphy's series of cases occurred in soldiers, aged from 28 to 43; none had ever served in the army before the present war. In every case (with one exception) the teeth were carious; in twenty cases there was marked pyorrhea. In twenty cases there had been a definite history of dyspepsia; in no case any hematemesis. Twenty-three cases were diagnosed as acute abdomens, presenting all the cardinal symptoms. Four cases were diagnosed as acute appendicitis, the appendix incision being used for drainage. In twenty-four cases period between rupture and operation was five to thirteen hours; all recovered. The two fatal cases had been ruptured sixteen and twenty-three hours, respectively; both died of general peritonitis. One patient ruptured twenty-one hours recovered. In all cases a purse-string suture of silk was put in round the ulcer; this was drawn together and the ulcer invaginated and a few Lembert's sutures over this to guard against leakage. In three cases the ulcer was so large that a piece of omentum was sewn down over it as a precaution. The site of rupture: In eighteen cases on anterior wall near lesser curvature; in six cases on anterior wall near greater curvature; in three cases posterior wall. In twenty-five cases the peritoneal cavity was well irrigated with saline infusion. In two cases the soiling was slight, and it was deemed wiser not to irrigate. In all cases (except four opened as appendicitis) a stab drain was made over pubis and a large tube put in, and in every case a large tube was placed down to site of rupture.

31. **Plastic Operation for Lengthening Amputation Stump.**—In a case of high humeral amputation Smith made use of this method. An inverted horse-shoe incision was made into the axilla, the stems of the incision being made well within the confines of the axillary space, to obviate the resulting scars being pressed on by the artificial arm later. The stump was abducted by an assistant, and the insertions of the pectoralis major in front and the latissimus dorsi behind were divided distally for about one half of their extent. The divided portions of the insertions of these muscles were tucked inward and upward and stitched into position by means of chromic catgut. The stump was now well abducted, and on account of the shortening of the axillary cavity the skin came together easily, the U being replaced by Y. The available stump was increased to 2 inches, and the patient wears an ordinary Blatchford A. E. arm, and has full control over the elbow movement.

Sei-I-Kwai Medical Journal, Tokyo

May, 1918, **37**, No. 435

32 Pathology of Beriberi. K. Honda.—p. 17.

Bulletin de l'Académie de Médecine, Paris

May 7, 1918, **79**, No. 18

33 *Epidemic Lethargic Encephalitis. A. Netter.—p. 337.
34 *The Survival of the Heart of Vertebrates. O. Laurent.—p. 347.
35 *Prognosis of War Fractures of Femur. Couteaud.—p. 352.
36 Rupture of Trachea from Shell Concussion. P. Coudray.—p. 354.
37 *Hysterectomy for Pelvic Suppuration. Rochard.—p. 356.

33. **Epidemic Lethargic Encephalitis.**—A previous communication by Netter was summarized in the Paris Letter, June 22, p. 1964. In the fifty-four cases compiled by Netter only thirteen of the patients were under the age of 13. The mortality was over 50 per cent., but the recovery seemed to be complete in those that survived. The disease may last only a few days or it may persist for weeks, or two or three months or more, the patients finally recovering when a fatal termination seemed inevitable, the sacrum, buttocks, spine and heels covered with eschars. Necropsy shows a diffuse interstitial encephalitis; the microscopic lesions resemble those of the trypanosoma sleeping sickness of Africa. Two previous epidemics are on record, one following the pandemic of influenza in 1890, and another in 1895, with cases reported from eight European countries and the United States. Netter insists that the disease cannot be a form of poliomyelitis, and its coincidence with influenza seems merely casual. There is nothing to sustain the assumption of botulism. He gave hexamethylenamin, finding it in the spinal fluid soon after. Intraspinal injection of convalescents' serum seems to offer the best promise in treatment, but he had no chance to apply it, although he has reported the successful application of this principle in treatment of poliomyelitis (1914).

34. **Survival of Heart.**—Laurent urges further research, in specially equipped laboratories, along the lines he has been working, studying the behavior of the heart after the abdomen and thorax have been opened or the animal killed in other ways. In one snake the heart was beating eleven times a minute three hours after death from chloroform. In twenty-seven animals he joined the heart of one animal to the abdominal aorta of an otherwise normal living animal, or to both the aorta and vena cava. He does not attempt to say whether the reviviscence of the heart thus "branched" is a recovery of vital energy, but the phenomena observed suggest this. They promise good results from utilization in this way of the vital energy of another organism. In four groups comprising eight wounded men he sutured the skin and muscles together, these Siamese wounds healing as rapidly and completely as the healing of the lips of an ordinary wound. The tolerance for these Siamese operations is the expression of a vital resistance, a potential of energy far surpassing anything previously imagined. He has sutured the shoulders of two ruminants together, and has thus united fowls of different species.

35. **Prognosis of War Fractures of Femur.**—Couteaud comments on the remarkable change for the better in the prognosis of war fractures of the femur. Among 213 men with compound fractures, 38 have entirely recovered; 92 have resumed full or light duty; 21 have been discharged with a more or less useful limb, and there are only 31 *mutilés* in the group; 31 died, mostly from phlebitis of small vessels. This entailed sudden death at some slight exertion; it is like a poisonous snake, ready to inoculate its venom at any moment. The prognosis depends on the individual resistance, and this is hard to foretell.

37. **Hysterectomy.**—Rochard pleads that total abdominal hysterectomy is far superior to the subtotal, which is having a vogue at present. He has encountered cases of cancer developing in the retained portion of the uterus, and the total removal of the uterus is the only practicable means for thorough drainage with severe suppuration in the pelvis. He obtains the advantages of both technics by doing first the abdominal subtotal operation and then immediately removing the cervix from below. The vagina is thus left open as after vaginal hysterectomy, with none of the defects of the latter technic. Some minor points in the technic of this "totalized subtotal hysterectomy" as he calls it, are described. The complete technic was written up in J. Dedet's Paris thesis, August, 1917.

Bulletins de la Société Médicale des Hôpitaux, Paris

March 22, 1918, **42**, No. 11

38 *Infectious Sore Throat. A. Courcoux and R. Debré—p. 297.
39 *Tuberculous Peritonitis. C. Achard and A. Leblanc.—p. 301.
40 *Lethargic Encephalitis at Paris. A. Netter.—p. 307.
41 *Oculomotor Paralysis from Shell Concussion. Lortat-Jacob and G. L. Hallez.—p. 311.
42 Arsphenamin in Chronic Lamblia Enteritis. A. Cade and A. C. Hollande.—p. 314.
43 *Adjuvants to Serotherapy in Meningitis. L. Boidin.—p. 317.
44 Oscillometer Test of Factitious Edema. D'Oelsnitz, Boisseau and Leroux.—p. 321.
45 Leukocytosis in Typhus. G. Stefanopoulo.—p. 323.

38. **Recurring Vincent's Angina.**—Courcoux and Debré state that fusospirillar sore throat is of more frequent occurrence of late than they have ever known it. In 1916 the proportion in the troops was about 2.26 per cent., the same figure that Vincent reported in 1905. In the last year, moreover, they have encountered a number of recurring cases. In one, the intervals of apparent health were one month and two and three months, the man having attacks between August and March, all equally severe. In a second case there were three attacks between May and November, but the general reaction was mild. Another man had an attack early in 1915, another two years later, and a third, ten months afterward, proved particularly tenacious. The spirilla and fusiform bacilli were found numerous during the free interval in the one man examined, who was thus a healthy carrier at the time.

39. **Tuberculous Peritonitis.**—Marfan has described in children a form of suppurative peritonitis localized at the umbilicus, and Achard here reports a typical case of this rare form of peritoneal tuberculosis. His patient is a man of 62 and the fistula just above the umbilicus has kept open for five months, but there are no other signs of tuberculosis and the general health has not suffered. There is no fever and the man has gained 22 pounds in weight. The first symptoms had been ascites and tympanism, as in children. Heliotherapy is scarcely available in this case on account of the thick and stiff walls of the pus pocket; some operative measure seems indicated.

40. See Abstract 33 above.

41. **Isolated Oculosympathetic Paralysis from Shell Concussion.**—The man of 31 was left with the Claude Bernard-Horner syndrome after subsidence of the usual nervous disturbances from severe shell concussion.

43. **Adjuvants to Serotherapy in Meningitis.**—Boidin has an autogenous vaccine made as a routine measure from the fluid obtained by spinal puncture in the meningitis cases. He injects it in very severe cases with or without a supplementary fixation abscess. The turn for the better under these adjuvants to serotherapy confirms their efficacy. In a typical case described, the first fixation abscess was followed by marked improvement. Then came a relapse, and permanent defervescence the second day after the second injection of turpentine to induce a fixation abscess. He advises these adjuvants in severe cases, especially when serotherapy for any reason was not applied early.

Journal de Médecine de Bordeaux

April, 1918, **89**, No. 4

46 *Simplified Suspension. J. Vitrac and L. Mongie.—p. 87.
47 The Sanatorium at Ilbarritz for Soldiers with Bone and Joint Tuberculosis. Peyret and Fournier.—p. 89.
48 *Rat-Bite Disease. P. Mauriac.—p. 93.
49 Physical Culture for Mind Workers. P. Nadal.—p. 97. To be continued.

46. **Suspension for Fractures.**—Vitrac and Mongie have materially simplified the apparatus for suspension, using interchangeable parts. The principle of cradle and hammock suspension is applied according to Alquier's technic, but the apparatus is much modified, as is described with illustrations.

48. **Rat-Bite Fever.**—The case reported differed from those on record in that there was little fever and no muscular pain, but intense pains in the joints and modification of the blood picture, with extreme anemia and weakness and high leukocytosis. The Wassermann reaction was positive although there was nothing to suggest syphilis otherwise.

Presse Médicale, Paris

May 13, 1918, **26**, No. 27

50 The Thomas Splint. P. Desfosses and C. Robert.—p. 241.
51 Macedonian Malaria. J. Bouygues.—p. 244.
52 *Acidosis from Surgeons' Standpoint. F. Jeunet.—p. 246.
53 *Topical Reaction in Treatment of Syphilis. Lacapère.—p. 247.
54 *Alveolar Pyorrhea. B. Kritchevsky and P. Séguin.—p. 248.

52. **Acidosis and Surgery.**—Jeunet remarks that the surgical patient has a special pathology, and it permits the practitioner to determine the indications for operation, to keep track of the immediate and remote consequences of the operation, and to ward off impending ills. Acidosis in particular can be detected, and measures taken to bring it under control or ward it off. Acidosis is probably responsible for certain cases of sudden coma after an operation, collapse suggesting embolism, and sudden death. The lesions accompanying acidosis involve the liver, brain cells, suprarenals and thyroid, but they are generally temporary disturbances. They subside during natural sleep, but not during repose without sleep. He cites Crile extensively, and declares that the ammonia content of the urine is an index of the resisting powers. With 2 gm. in the urine the acidosis must be regarded as grave, but not irremediable; with 3 gm. the prognosis is bad. In normal conditions, 10 gm. of sodium bicarbonate renders the urine alkaline, but in case of acidosis, 20, 40 or 50 gm. are necessary. The main point, however, is to ward off the acidosis by diet, copious supply of fluids, stimulants, and keeping the patient quiet, tranquil and cheerful.

53. **Topical Congestion in Syphilis.**—Lacapère declares that as long as the spirochetes are in evidence there will be a local congestion as the reaction to each injection of arsphenamin or its substitutes. The reaction grows less and less, as the spirochetes die off. This topical congestion reaction occurs in every syphilitic lesion, and so regularly and constantly that it may be utilized in differentiation of the syphilitic nature of a lesion. The congestion develops suddenly and reaches its height by the next day. The clinician should aim to keep these reactions slight, as they may prove serious when the lesions are in the brain, heart or kidneys. Once developed, they can be attenuated by subcutaneous injection of epinephrin, and it may be advisable to give a preliminary injection of epinephrin before repeating the dose of arsphenamin. In a case reported there was loss of consciousness after the third dose of arsphenamin in a syphilitic with headaches, vertigo and deafness for some months. The doses had been, respectively, 0.10, 0.15 and 0.30 gm. at five day intervals. If it had not been for the immediate injection of epinephrin, the cerebral congestion might have had serious consequences.

54. **Alveolar Pyorrhea and Arsphenamin.**—Kritchevsky and Séguin have been examining the teeth of 244 persons taking a course of arsphenamin (neosalvarsan) treatment. They found that 43 had pronounced pyorrhea and 62 incipient pyorrhea. Among 143 persons who had completed the course, they found spirochetes only in 3. In the 24 untreated cases of pyorrhea the spirochetes were found numerous in all but 2. In fully 50 per cent. of 110, before treatment, the secretions taken from the gums swarmed with spirochetes. After a course of treatment with neosalvarsan, no spirochetes could be found on the gums in 29, but in 13 others they were still numerous. No local measures had been applied, not even the removal of tartar. In other cases they applied the arsphenamin locally and the results were remarkable in every instance. Treatment of pyorrhea, therefore, they declare, should be by intravenous injections of neosalvarsan plus local treatment by curetting and thorough polishing of the root. They have found fluorin salts useful in removing tartar as they render it more friable. Besides this mechanical treatment, they instil neosalvarsan directly into the pocket, in solution or as a powder. The illustration of the spirochetes found shows great diversity in shape and size. The stain used was the Fontana-Tribondeau ammoniacal silver nitrate stain. Kolle published in January, 1917, the complete cure in 90 cases of pyorrhea under intravenous injections of neosalvarsan without local treatment. By the third injection, all were cured.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 11, 1918, **48**, No. 19

55 *Local Anesthesia for Operations on Eyes. O. Haab.—p. 593.
56 *The Spirocarbometer. A. Rapin and M. Turin.—p. 600.
57 Cretinism in Nollen Region. Finkbeiner.—p. 607. Continued.

55. **Local Anesthesia for Operations on Eyes.**—Haab refers in particular to iridectomy for glaucoma, and advocates injection of 2 drops of a 10 per cent solution of cocain, under the conjunctiva, at the point where the iridectomy is to be done. In from seven to ten minutes the iridectomy can then be done tranquilly and correctly, as this strong cocain solution actually banishes all pain. The same procedure is useful also for removal of a foreign body. In a case described a girl hoeing in stony ground felt a foreign body in her eye, but the physician consulted did not advise the use of the giant magnet which would easily at that stage have removed the scrap of iron responsible for the disturbances. Recurring mild inflammation finally compelled its removal, fifteen years later, but it was then rusty and embedded so firmly the magnet could not dislodge it. Under the subconjunctival injection of the 10 per cent. cocain, the scrap was easily removed through an incision in the cornea. The iris was seized with pincers; this loosened the scrap of steel, but iridectomy was not done. The iris was reduced and the patient was dismissed the tenth day with round pupil and normal vision. The steel splinter was 1.5 mm. long by 1 mm. wide and 0.5 mm. thick. Such cases are usually very difficult as, the iris being inflamed, it is exceptionally sensitive. The smooth course was evidently due to the complete anesthesia, as also in forty-six iridectomy operations done in the same way. It materially simplifies iridectomy which he regards as the main operation for glaucoma in adults; in children, he prefers sclerotomy.

56. **Carbon Dioxid Tension as Index of Acidosis.**—Rapin and Turin describe a simple little apparatus, the spirocarbometer, which permits at the bedside the determination of the carbon dioxid tension of the alveolar air, as an aid in estimating the degree of acidosis in a diabetic or other patient at a given moment.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1917, **1**, No. 2

58 *Behavior of Leukocytes in Epilepsy. A. Bossard.—p. 269.
59 *Familial Amaurotic Idiocy: Pathologic Anatomy. F. Naville.—p. 286; Clinic.—p. 314.
60 Myopathy of Peripheral Origin. F. Naville.—p. 338.
61 *Connecting Tracts between the Cerebellum and the Stem of the Brain. H. Uemura.—p. 342. Commenced in No. 1, p. 151.
62 *Physiology of Convolutions. M. Minkowski.—p. 389.

58. **The Leukocytosis with Epilepsy.**—Bossard found leukocytosis a regular accompaniment of the epileptic seizure. It is distinguished not so much by the numbers of the leukocytes as by the early appearance of lymphocytosis and of mononucleosis. Sometimes a polynuclear leukocytosis precedes the seizure by several hours. The same pathologic conditions causing the seizure are probably responsible also for this preliminary leukocytosis.

59. **Familial Amaurotic Idiocy.**—The microscopic findings in the typical case described show aplasia of the tracts in addition to the usual lesions of this form of idiocy. The infant was the fourth to be thus affected in a family with six children. The aspect of the neuraxis was like that in a six months fetus. In a second article Naville discusses the clinical picture, emphasizing that besides the infantile form there is a juvenile form and atypical forms, but all proceeding from the same pathognomonic degeneration of the cells. The eye findings may vary widely in these various types, but otherwise they are superposable with the exception that the infantile form has been found exclusively in Jewish families.

Among over 100 cases that have been published in various scattered parts of the world, all were in Jewish families except two. He adds that the families affected are even exclusively Polish Jews. In Magnus and Pooley's two cases, histologic examination was not made, so that an error in diagnosis is possible, and some admixture of Jewish blood is also possible. This racial feature of a disease found in the most diverse countries, he remarks, is a fact unique in pathology. The mendelian features seem to indicate a dominant character, as it affects 50 per cent. of the children and 100 per cent. of those of the same sex in certain families. Consanguineous unions are rare. It may possibly be a type of parental heredity which aborts because the subjects have no posterity. The connection between this disease and familial diseases of evolution is well shown by Higier's Jewish family in which there was one case of essential atrophy of the optic nerve, one case of Marie's cerebellar ataxia, and one of the amaurotic idiocy. The parents were not consanguineous and there was no history of syphilis. In some of the families on record three males, four males, were affected, but in Hume's case and in the family here described by Naville the boys escaped, and three girls were the victims. The articles are in French.

61. **Connecting Tracts Between Cerebellum and Stem of Brain.**—Uemura's extensive work is in German and has forty-one illustrations showing the different connecting links, and the different parts thus connected with each other.

62. **Physiology of the Rolandic and Parietal Convolutions.**—Minkowski's experimental research on the motor and sensory cortex confirms the clinical data and conclusions published recently by Monakow. The deficit phenomena were studied on macacus monkeys striving to make the conditions analogous to those in the clinic. This article is in French; with the bibliography, it fills seventy-one pages.

Clinica Chirurgica, Milan

June, 1917, **25**, No. 6

63 *War Wounds of the Bladder. C. Oliva.—p. 561.
64 *Pseudarthrosis from War Fracture. R. Alessandri.—p. 582.
65 *Improved Gastrectomy. A. L. Soresi.—p. 585.
66 Abdominal War Wounds. R. Alessandri.—p. 614.

63. **Wounds of the Bladder.**—Oliva reports that in his six cases of extraperitoneal wounds of the bladder a retention catheter tided the men along to recovery, with only 20 per cent. mortality. Healing was complete in less than ten days in all but one case with a fistula. That spontaneous healing is possible is evidenced by the numerous cases that have been published in which the projectile was extracted later. The slightest indication, however, that urine continues to seep into the tissues around calls for suprapubic cystotomy. Oliva advocates immediate intervention through the abdomen or the perineum if the man is brought in within the first few hours after the wound. This is the sure and safe plan when the wound is seen early.

64. **Pseudarthrosis of Ulna.**—Alessandri gives an illustrated description of the way in which he corrected the pseudarthrosis by a graft from the fibula.

65. **Improved Gastrectomy.**—Soresi's eighteen illustrations show the various steps of his technic and the results in a dog two years after the intervention. The clinical course in two patients is also reported. The advantages claimed for his technic are that the natural anatomic and physiologic conditions are restored better than with any other method, and that each step is facilitated by the one just before. There is no danger of hemorrhage or of infecting the field of operation, or of injuring important structures. The distal stump of the jejunum is sutured to the lowest point of the vertical raw edges of the stomach after the edges above have been sutured. Then the proximal stump of the jejunum is implanted low down in the distal part of the jejunum with an end-to-side suture. The stump of the duodenum is inverted with a sero-serosa suture. The edges of the jejunum where it is sutured to the stomach are cut rounding in such a way as to form a kind of ampulla.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 14, 1918, **39**, No. 30

67 *Common Mucous Enterocolitis. P. Finizia.—p. 293.

April 18, 1918, **39**, No. 31

68 *Mustard Gas on Italian Front. I. Andreoli.—p. 307.

67. **Mucous Enterocolitis.**—Finizia applies this term to a dysenteriform set of symptoms common among the troops on active service, but it never lasts very long and does not impair the general health. He warns that treatment should be restricted to resting the bowels; any attempt to give a purge is liable to aggravate and prolong the symptoms. Sudden pain is usually the first symptom, and the recurring colic and desires for frequent defecation are not accompanied by diarrhea. The act of empty defecation is painful and difficult; often nothing is voided but mucus and blood. He found the most effectual treatment to be with oil to reduce the inflammatory condition in the bowel, giving a little opium in the oil to reduce the reflex irritability, with food that makes little demand on the intestines.

68. **Poisoning from Mustard Gas.**—The case reported shows that yprite or "mustard gas" is being used now on the Italian front. The symptoms were those of a traumatic neurosis with cardiovascular and respiratory phenomena in addition to the burns on the exposed parts and external genitals, and extreme irritation of the conjunctival and nasal mucosa.

Policlinico, Rome

May 12, 1918, **25**, No. 19

69 *Diagnosis of Typhus. A. Ceconi.—p. 437.
70 *War Wounds of Thorax. V. Saviozzi.—p. 441.

69. **Diagnosis of Typhus.**—Ceconi applies an elastic band, or compresses with the fingers, to obstruct the circulation in the arm. If typhus is present, this brings out the spots in large numbers and intensifies the tint of those already prominent. As the constriction is released, some of the spots change at once to petechiae. The same procedure shows a marked change in tint in patches of the skin of those who have recently passed through typhus, permitting a retrospective diagnosis, even four or eight weeks after defervescence. Histologic examination of a scrap of skin from one of the spots, even eight weeks afterward, still showed the vascular features of the petechial roseola. Ceconi warns that this constriction test may induce similar phenomena in simple and in hemolytic jaundice, and in rheumatic purpura, but the symptoms otherwise prevent confusion. The region over the scapula on which the sick man lies most of the time usually shows the same accentuation of the spots as below the constricting band. Dermographism is also pronounced in typhus, and desquamation follows the stroke of a pencil or finger on the skin. The skin throws off a powder like the dust raised on paper with a rubber eraser. Another feature of typhus is the torpid circulation, so that intramuscular and subcutaneous injections, etc., almost inevitably entail topical gangrenous manifestations even a month after recovery. The agglutinating reaction grows less pronounced parallel to the subsidence of the stasis phenomena.

70. **War Wounds of the Chest.**—Saviozzi has had 137 cases of war wounds of the chest with sixty-nine recoveries. Thoracentesis in the first week is liable to bring on hemorrhage. The necropsy findings impress the necessity for ligating the intercostal artery, if the hemorrhage is from the chest wall. This can be done through a small incision made for the purpose. Morelli has recently reported excellent results from induced pneumothorax with filtered air to check hemorrhage after aspiration of the blood in the pleural cavity.

Riforma Medica, Naples

April 20, 1918, **34**, No. 16

71 Technic for Cesarean Section. S. Delle Chiaje.—p. 302.
72 *Italian Contributions to Endocrinology. A. Ferrannini.—p. 306.
73 The Thyroid with Exophthalmic Goiter. R. de Nunno.—p. 309.

72. **Italian Contributions to Endocrinology.**—Ferrannini remarks that G. Müller, in 1830, was the first to call attention to the existence of glands with an internal secretion, but the Italian, Restelli, in 1845, inaugurated the system of studying function by deficit, removing the spleen for the purpose.

This was eleven years before Brown-Séquard's research in this line. Pellacani and Foa in 1879 and 1883 published reports of injection into animals of suprarenal extract. Brown-Séquard's famous experiments with organ extracts date only from 1889. The suprarenals were first described by the Italians, Eustachio in 1563, Bartolini in 1641 and Malpighi in 1687. The histology of the endocrine glands was intensively studied early by numerous Italians, and even the Germans cite Diamare as the first to establish the influence of the islands of Langerhans on carbohydrate metabolism. In 1889, experimental diabetes after removal of the pancreas was reported by De Dominicis in Italy and simultaneously by Minkowski and Mering in Germany, but the Italian, Martinotti, the year before had proved the feasibility of pancreatectomy in dogs. It was Vassale in 1896 who first established the phyciologic rôle of the parathyroids, and Lo Monaco in 1894 the rôle of the pituitary body, as determined by the effects of removal.

Flajani's pioneer description of exophthalmic goiter dates from 1802; it was amplified by Graves in England in 1835 and by Basedow in Germany in 1841, but Castellino was the first to ascribe the disease to excessive functioning of the thyroid. The ovarian factor in chlorosis was first emphasized by Fedeli, Arcangeli and other Italians. In 1897, Rummo and Ferrannini described what they called geroderma genitodistrofico, which they ascribed to abnormal functioning of several ductless glands. This was years before the French in 1905 advanced the new conception of pluriglandular insufficiency. Ferrannini in 1903 called attention to a constitutional hypotony of the vessels, from congenital functional deficiency in the suprarenal-sympathetic system; Addison's disease is the most striking example of this. A year later Vaquez described a syndrome due to excessive functioning—the exact opposite. In 1913 Ferrannini described research showing the importance of the suprarenals in the vascular compensation of aortic insufficiency, and a year later Josué published an account of a variety of myocardium insufficiency in which, while the heart was found hypertrophied, the suprarenals showed various injuries. In 1890 Vassale suggested thyroid treatment for hypothyroidism, and Ferrannini proposed an extract of stomach tissues in treatment of stomach disease. Not until five years later was similar treatment suggested and carried out in France. The Italians were pioneers also in other fields of endocrinology, such as the internal secretion of the spleen, of the tonsils and salivary glands, and association of xerosis with asthenia and cachexia.

Rivista Critica di Clinica Medica, Florence

Jan. 5, 1918, **19**, No. 1

74 Behavior of Urine after Salvarsan. S. Pisani.—p. 5.

Jan. 12, 1918, **19**, No. 2

75 *Peripheral Facial and Acoustic Paralysis with Hemiplegia. F. Schupfer.—p. 13. Commenced in No. 1.—p. 1.
76 Technic for Quinin in Malaria. G. Memmi.—p. 22.

75. **Syphilitic Peripheral Paralysis.**—The Wassermann reaction is positive in the man of 46 but the facial and left acoustic paralysis and homolateral hemiplegia was of four months' standing before the syphilitic origin was suspected and specific treatment applied. The parts had evidently been injured beyond repair during these four months. The first symptoms of trouble were disturbances in hearing and peripheral paralysis—all on the left side and ascribed to rheumatism for over three months.

Anales del Inst. Mod. de Clinica Medica, Buenos Aires

July-December, 1917, **2**, No. 2

77 The General Pathology of the Liver. L. Agote.—p. 167.
78 Ileocecal Tuberculoma. J. Arce.—p. 171.
79 Relative Leukocyte Count in Normal Adults. E. Lorentz.—p. 181.
80 Double Iodid of Emetin and Bismuth in Treatment of Amebiasis. R. F. Vaccarezza.—p. 204.
81 *Experimental Degeneration and Regeneration of Peripheral Nerves. P. Rojas.—p. 218.
82 Horseshoe Kidney. A. Galindez.—p. 285.
83 *Brain Tumor. L. Merzbacher and R. Novaro.—p. 290.
84 *Knot Constrictor. A. Galindez.—p. 309.
85 Roentgen Findings with Stone in Pelvic Ureter or Gallbladder. J. F. M. Gomez.—p. 314.

81. **Regeneration of Peripheral Nerves.**—Rojas' long article is accompanied with forty-six photomicrographs showing the course of the degeneration and the regeneration of the sciatic nerve of various young animals, mostly dogs, rabbits and guinea-pigs, after the nerve had been severed, crushed or otherwise injured.

83. **Tumor in Ventricle Simulating Pituitary Tumor.**—In the two cases described, with photomicrographs, the symptoms pointed apparently unmistakably to a tumor in the pituitary body. But when this region was opened up by slitting the nasal septum, the pituitary body was found normal. One of the young women died two days later; the other survived for several weeks. In both cases a sarcoma in the third ventricle had induced hydrocephalus and direct compression of the infundibulum.

84. **Knot Clincher.**—Finocchietto's apparatus, called the *constrictor cierra-nudos*, applies a clip bent to form a square, and clamps it tight and firm. The compression is done between the four rigid walls which the instrument presents to the part of the bowel or pylorus to be clamped.

Brazil-Medico, Rio de Janeiro

March 30, 1918, **32**, No. 13

86 Eugregarina Parasites of Arthropods, V. C. F. Pinto.—p. 97.
87 Local Disinfectants in Otorhinolaryngology. J. Marinho.—p. 98.

Cronica Medica, Lima, Peru

April, 1918, **35**, No. 658

88 Syphilitic Aortitis and Nephritis. E. Odriozola.—p. 97.
89 *Echinococcus Cyst in Liver. C. A. Bambaren.—p. 102.
90 *Pregnancy in the Tuberculous. R. A. Menendez.—p. 113.
91 *Leishmaniasis. E. Escomel.—p. 116. Continuation.
92 History of Chemistry in Peru. H. Valdizan.—p. 120.

89. **Perforation of Echinococcus Cyst.**—Three years after an operation for echinococcus cyst of the liver, the young woman returned with the same set of symptoms, and a second operation revealed a large echinococcus cyst. Each time the cyst had been treated with formaldehyd before its removal. The cyst the second time contained 2,500 c.c. of fluid. The second day after the last operation the dressings over the wound were found soiled with substances from the stomach, showing a postoperative perforation into the stomach. The cyst was tamponed firmly and nothing was allowed by the mouth for three or four days, after which smooth recovery followed. There had evidently been adhesions enough to prevent injury from the perforation into the stomach. The first cyst may have been multilocular, and the second one was probably a recurrence. Quemin has compiled 66 cases of recurrence, in 29 in the liver and in 11 in the muscles. Cranwell and Vegas have reported recurrence in 22 of 414 cases, including 18 in the liver. The intervals ranged from one to eighteen years, but all but 10 were in the first three years.

90. **Pregnancy in the Tuberculous.**—From his own experience and the data on record, Menendez concludes that induced abortion gives good results only when there is a simple tuberculous process at the apex, not extensive and not complicated with other lesions, and the pregnancy has not reached the fourth month. When abortion is not practicable, excision of the site of the placenta or hysterectomy after delivery does away with the dangerous secondary focus in the placenta region.

91. **Leishmaniasis.**—In this instalment of his authoritative serial on leishmaniasis, Escomel discusses the disease as it involves mucous membranes and the skin, the ulcerative form, the papulotuberculous, the atrophic and the lymphangitic forms. His experience confirms that of others who have never been able to find giant cells in the ulcerations in the skin.

Cronica Medico-Quirurgica, Havana

March, 1918, **44**, No. 3

93 Congenital and Traumatic Cataract and Cataract in the Young. J. Santos Fernandez.—p. 128.
94 *Reflex Amyotrophy of Joint Origin. J. O. Cano.—p. 132.
95 Perirenal Abscess after Anthrax. A. P. Miro.—p. 138.
96 *Hospitalization of Typhoid. M. G. Lebredo.—p. 141.
97 Organization of the Medical Press. V. Sotolongo.—p. 147.

98 Reese's Operation for Squint. F. M. Fernandez.—p. 158.
99 *Right of Pharmacist to Refuse to Dispense Prescription. G. F. Abreu.—p. 161.

94. Summarized when it appeared elsewhere, Abstract 105, April 6, 1918, p. 1045.

96. Summarized when it appeared elsewhere, Abstract 92, April 27, 1918, p. 1269.

99. **The Pharmacist's Right to Refuse to Dispense a Prescription.**—Abreu urges modification of the present laws to permit a pharmacist to decline to dispense a medicine—even if the prescription has been ratified by the physician—when he believes there is incompatibility between the ingredients or the amounts specified are excessive. He suggests that the regulations should provide that unless the physician can satisfy him by citing some textbook or other authority or work based on personal experience and presented at some medical society and approved by it, the pharmacist is at liberty to refuse to dispense the medicine in question. Abreu also pleads to have every prescription state explicitly the single dose and also the number of doses per day; when this is not done, the pharmacist is degraded to the rank of a mere mechanical factor, with no means of judging the prescription's suitability. It is safer for the patient, also, to have the limit for the day specified. For certain drugs, the maximal single dose and the toxic dose are very close together. The Codex gives the single maximal dose for atropin as 0.0005 gm. and the maximal dose for twenty-four hours as 0.001 gm. which is only twice the single dose. A prescription calling for 0.005 gm. might be ratified by the prescriber but if more than two doses were taken during the day, there would be severe toxic action. Another point to which he calls attention is the necessity for legislation to insist that all chemical and pharmaceutical products introduced into the country for the first time must specify on the label the therapeutic and the toxic doses, in addition to the data now required.

Gaceta Medica de Caracas, Venezuela

March 15, 1918, **25**, No. 5

100 The Academies of Medicine. J. Santos Fernandez.—p. 48.

March 31, 1918, **25**, No. 6

101 Efficacy of Tartar Emetic in Leishmaniasis of the Horse. J. Iturbe.—p. 62.
102 Relapsing Fever in Venezuela. C. J. Bello and H. Sanchez.—p. 63.
103 Syphilis. C. E. Salom.—p. 64.

Prensa Medica Argentina, Buenos Aires

March 20, 1918, **4**, No. 29

104 *Tardy Inherited Syphilis. M. R. Castex.—p. 407.
105 *Ocular Paralysis after Intraspinal Anesthesia. E. Dameno.—p. 417.

104. **Tardy Manifestations of Inherited Syphilis.**—Castex is convinced that gastric and duodenal ulcers are as closely linked to inherited or acquired syphilis as tabes and general paralysis. The next step, he remarks, is to question the connection between syphilis and cancer, as a certain proportion of gastric ulcers become transformed into cancer. Cerebral and rectosigmoid syphilitic lesions are common in Argentina, and also cancers in these regions. The question of syphilis in the antecedents of cancer cases and of dementia praecox is not a new one, but has not been thoroughly investigated. On the other hand, the anatomic findings and the benefit from treatment have confirmed the inherited syphilis basis in his experience with perivisceritis, polyserositis, pseudotumors in the brain, myopathies and juvenile asthma. The spirochete is found in many cases of tardy inherited syphilis. The tardy manifestations first appear between the eighth and fourteenth years, and do not differ in any respect from the tertiary manifestations of acquired syphilis. He ascribes great diagnostic importance to the minute "achromic and anectodermic scars" scattered on the trunk or legs. Fournier classed them as relics of some specific eruption early in life, but Castex insists that they are the scars left by small tertiary gummas in the skin which had subsided spontaneously or under the influence of specific treatment. He has found them, in both inherited and acquired tertiary syphilis, in over 90 per cent. of his cases. With untreated tertiary syphilis, if the skin is burned or contused, the scars that result take this typical nonpigmented anectodermic form. But if vigorous treatment is applied, they do not take this form.

He reports cases which confirm the possible virulence and contagiousness of tardy inherited syphilis and its possible transmission to the children, and advocates vigorous and repeated mercurial treatment in all cases of inherited syphilis, although he does not assert that it is possible to cure inherited syphilis.

105. **Oculomotor Paralysis After Intraspinal Anesthesia.**—Dameno reports four cases in which the external rectus muscles of the eyes became temporarily paralyzed after an operation under novocain spinal anesthesia. The paralysis did not develop until a few days afterward, and if subsided completely by the end of three weeks. The sixth pair seems to be particularly susceptible to toxic action from intraspinal anesthetization, but in all the eighty similar cases on record the disturbances retrogressed spontaneously.

Revista Medica del Uruguay, Montevideo

March, 1918, **21**, No. 3

106 Cow's Milk for Children. L. Morquio.—p. 97.
107 *Primary Echinococcus Uterine Cyst. A. Turenne.—p. 119.
108 Febrile Chlorosis. P. E. Duprat.—p. 126.

107. **Primary Echinococcus Cyst of the Uterus.**—Turenne started to excise a supposed myoma in the uterus of a woman of 47. As the tumor was seized with forceps, it tore and a flood of fluid startled the surgeon as he feared he had blundered into overlooking a pregnancy. There was nothing to be done then but remove the uterus by subtotal amputation. In Argentina where echinococcus disease is so common, he has been unable to learn of but one other case of a primary echinococcus affection of the uterus. In the literature he has found records of eight others, published in England, Germany, Italy or Russia. His case brings the total to ten. In his case the cyst had probably been present during the woman's last pregnancy.

Semana Medica, Buenos Aires

April 18, 1918, **25**, No. 16

109 Sanatoriums and Farm Colonies for the Tuberculous. E. R. Coni.—p. 444.

April 25, 1918, **25**, No. 17

110 *Gastro-Intestinal Disease in Children. R. Cabrera and T. Scannavino.—p. 465.
111 The Prognosis in Tuberculosis. S. de Madrid.—p. 489.
112 *The Campaign against Tuberculosis. E. R. Coni.—p. 493.

110. **Digestive Disturbances in Children.**—This long article emphasizes the importance of classifying each case of dyspepsia according to the cause. Perhaps the most important difference between the disturbances from actual gastro-enteritis and dyspepsia from overfeeding is that the immediate symptoms with the latter are less intense and less grave. The course with gastro-enteritis is acute or subacute, never chronic. Other causes must be sought when this acute and cyclic affection drags over a long period. On removal of the secondary factors the gastro-enteritis subsides.

112. **Tuberculosis.**—Coni discusses the organization of a campaign against tuberculosis in the rural districts, and gives a historical sketch of the change in the general attitude toward the tuberculous in the last forty-five years. He states that there is no adequate notification in Buenos Aires of cases of tuberculosis. In the last four years, the numbers of cases reported to the authorities by physicians have been, respectively, 70, 74, 57 and 48. The anonymous notifications numbered 206, 223, 67 and 60—all showing a decline, while the number of deaths from tuberculosis increased last year.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 3

113 *Cholera Vibriones in Tropical Soil. P. C. Flu.—p. 1.
114 *Cholera in Batavia. P. C. Flu.—p. 39.
115 *Test for Fecal Contamination of Water. P. C. Flu.—p. 104.

113. **Survival of Cholera Vibriones in Soil.**—Flu refers to the soil in the coolie quarters at Batavia which become hotbeds of cholera whenever the disease is epidemic. The normal flora in the soil and other factors soon destroy the cholera

germs on the soil, so that none survive longer than two days when the ground is damp; during dry weather the vibriones are found alive in the soil up to four or six days. But even under the most favorable conditions, the vibriones do not proliferate in the soil.

114. **Endemic Cholera.**—Batavia still has endemic cholera although two other large towns in Java have ceased to be foci of endemic cholera since a good water supply has been installed. After having been free from cholera for some time an epidemic occurred at Batavia in 1909 and has continued to date with only a few months' intermission each year. Healthy carriers from Sumatra are evidently responsible for much of this morbidity, but the utter lack of hygiene among the natives, and the use of river water for drinking and bathing perpetuate the epidemic. Rainy weather facilitating drainage checks the epidemics, but sporadic cases continue even through the rainy season. Immediately after a heavy rain, flushing the latrines and contaminating the rivers, cholera flares up anew. As the rains continue, however, the vibriones get washed away and the fly nuisance abates, so that the epidemic dies out.

The link between the different epidemics is afforded by the sporadic mild cases occurring during the apparently cholera-free periods. Search for these mild sporadic cases and search for carriers is the only means to eradicate cholera. The vibriones do not lead a saprophytic existence in soil, in water or in flies. Their only permanent habitat seems to be in the human intestine, and especially in persons who have been left chronic sowers of vibriones after recovery from cholera. There is probably some specific inflammation of the bile ducts in which the vibriones lurk, analogous to conditions in typhoid carriers.

115. **Fermentation Test for Contamination of Water.**—Flu reviews the contradictory reports that have been published on Eijkman's fermentation test. It is based on the assumption that only true colon bacilli, from the bowels of mammals, are able to ferment glucose at 46 C. This is the maximal limit of the fermentation property. The Eijkman test, positive at first, may give negative findings when the contamination is no longer recent—a self-purification process having occurred. By applying the test in parallel sets of tubes at 37 C. and 46 C. the smaller or larger difference between the findings in each set will determine whether the contamination is recent or old. The glucose-peptone solution must be slightly alkaline. These reports are all published in parallel columns in Dutch and English.

Hospitalstidende, Copenhagen

April 17, 1918, **61**, No. 16

116 *Liver Substance in Treatment of Night Blindness. v. Stenitzer and G. E. Schrøder.—p. 481.
117 *Artificial Ankylosis of Wrist. H. Fovelin.—p. 493.

116. **Liver Treatment of Night Blindness.**—Schrøder was unable to detect any special influence on the hemeralopia when the men were given 200 gm. of cooked liver in their soup daily. Others have reported benefit from this.

117. **Artificial Ankylosis of the Wrist.**—Fovelin has seen large numbers of cases of war fracture of the humerus with lesion of the radial nerve causing "drop hand." To avoid condemning the man to wear a prosthesis for life, he induced artificial ankylosis of the wrist. This enabled the man to dispense with a prosthesis and use his hand comparatively normally.

Norsk Magazin for Lægevidenskaben, Christiania

May, 1918, **79**, No. 5

118 *Myasthenia Gravis. G. H. Monrad-Krohn.—p. 489.
119 *Yellow Tint of Cerebrospinal Fluid. F. Leegaard.—p. 512.
120 *Friedländer's Bacillus. E. Julsrud.—p. 533.
121 *Meningococcus—Gonococcus. E. Aaser and J. Holst.—p. 543.

118. **Myasthenia Gravis.**—Krohn warns against mistaking myasthenia for progressive bulbar paralysis or progressive ophthalmoplegia which it deceptively resembles. The paralysis with myasthenia gravis is not true paralysis; it is merely weakness of the muscles, and the aim in treatment is to rest the muscles. They must be given the chance and time to recuperate, and be protected against the slightest strain. All the muscles may be affected, but some more than others, and there is great variability, sudden changes from slight to extreme weakness and vice versa. No causal treatment is known but symptomatic measures may tide the patients past the danger point to final partial or complete recovery. In the first of two cases reported in detail, artificial respiration had to be applied several times and kept up sometimes for two hours. Subcutaneous injections of camphor seemed to help in this case. In the two cases published by Krogh, both patients died from suffocation. Most of the cases on record have been in women between 20 and 30. The central nervous system has been found apparently normal at necropsies. Electric tests demonstrate that the abnormal fatigue of the muscles is of peripheral nature, and in repose the muscle regains strength. The muscle is given a chance to rest and recuperate, and this is of vital moment, particularly for the muscles of swallowing. Krohn insists that lack of care in this respect may have fatal results. The patient's meals should be under the close supervision of a nurse who should see to it that, at the very least, two minutes must elapse between one swallowing movement and the next. The nurse should control this, watch in hand. The food can be fluid or chopped fine, but the muscles of swallowing must be given an interval of at least two minutes before they are used again. To let the patient drink from a cup—thus inducing a rapid series of deglutition movements—he regards as equivalent to murdering a person by drowning. The patient should always be spoon fed. Rectal feeding may usefully supplement the other food at need. He warns in particular against the stomach tube. It either induces reflex movements and thus unnecessarily exhausts the patient, or, if there are no local reflexes, the tube is liable to slide into the trachea. Oppenheim has reported a fatal result from the use of the stomach tube in myasthenia. The dyspnea requiring artificial respiration may come on suddenly, especially after a bad night. The movements for artificial respiration do not seem to fatigue the patient unduly. Electric tests should not be applied to the muscles of the head or trunk, but the myasthenic reaction in the extremities is a guide to the treatment, especially in regard to the necessity for care in feeding. He adds that strychnin is contraindicated. Absolute rest is the keynote to treatment.

119. **Xanthochromia.**—In Leegaard's three cases the yellow tint of the cerebrospinal fluid was due to tuberculous meningitis or hemorrhage from trauma or a tumor in the temporal lobe. These cases are compared with cases of xanthochromia on record.

120. **The Friedländer Bacillus.**—Julsrud reports two cases to illustrate some of the various clinical pictures for which Friedländer's *Bacillus pneumoniae* may be incriminated. In the first case there was fatal sepsis in a woman of 52. The other patient was a man of 40 in the hospital for three months with the diagnosis of pulmonary tuberculosis. There was no necropsy but the sputum contained only the Friedländer and inoculation of guinea-pigs and mice proved negative. He had had pneumonia six times since childhood, the next to the last time accompanied with empyema.

121. **Meningococcus-Gonococcus.**—Aaser and Holst refer to Eisenmann's work in 1830 on gonococcus meningitis and others since, citing cases of conjunctivitis, rhinitis and stomatitis of gonococcus origin, even in children, from extragenital infection. A case of primary gonococcus sepsis was reported in 1908. Gonococcus general infection may occur without urethritis, and meningococcus general infection without meningitis. In certain other respects the gonococcus and the meningococcus resemble each other, and among the diplococci found in certain sporadic cases of meningitis, some seem to stand closer to the gonococcus than to the meningococcus. They tabulate the findings in twenty-two sporadic cases of meningitis in which they applied different tests for gonococci to the cerebrospinal fluid, also to the secretions from the nasopharynx of patients with gonorrheal urethritis. Deviation of complement, agglutination and inoculation of animals all gave concordantly negative results.